the NORTHWESTERN MILLER®

THE INTERNATIONAL MAGAZINE
FOR THE GRAIN, MILLING
AND BAKING INDUSTRIES

INSIDE YOU'LL FIND . . .

Plans for the 65th Annual Technical Conference of the Association of Operative Millers

May 22-25

•

List of Exhibitors
Guide to Equipment, Services
Program for the Ladies

•

Donors of Equipment and Machinery to New K-State Mill

a miller publication • business journalists since 1873

Volume 265 MAY 1, 1961 Number 9

Gold Coin Rye

Americans love real rye bread—but they can't find it today in many of their favorite bakeries.

Are you capitalizing on rye bread in your shop? Remember, for real rye bread, there's nothing like International's complete line of Gold Coin Rye Flours.

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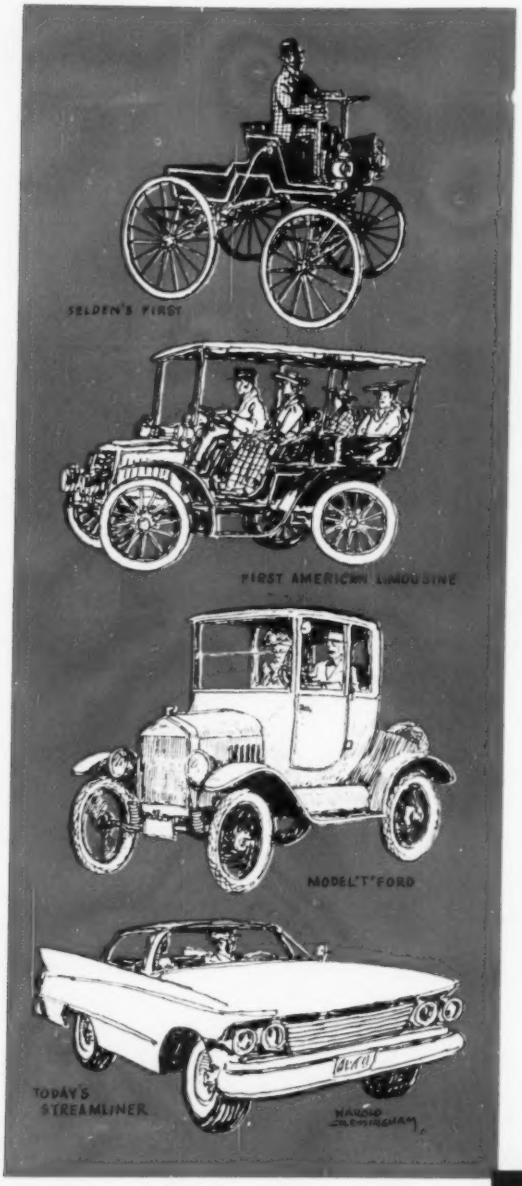

"WHAT'S NEW?"

A common greeting today, "What's New?" seems to suggest that what's old is uninteresting, and this is particularly true in the automobile industry.

Makers vie to out-date the other fellow with new gadgets, design, horsepower and what-have-you, forgetting that one of the best of them used to advertise "No Rolls Royce has ever worn out," and meant it.

We all welcome new ideas, new things, new techniques . . . that's how we move ahead . . . but let's not forget the staples that have been standard for years which the innovator has not been able to improve.

Let's remember SWISS SILK, the miller's sifting cloth for over a century, still going strong as the acknowledged favorite in an industry where it had to be good to survive, and had to be superior to attain its present-day popularity.

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DUFOUR

EXCELSIOR

NITEX

SCHINDLER

WYDLER

SWISS SILK

MR. "MILLER"
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the NORTHWESTERN MILLER®

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May 1, 1961

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COVER PICTURE—

For AOM visitors here is an advance look at the ultra-modern First National Bank Building in Minneapolis, erected on the site where THE MILLER headquartered for many years. Guided tours of the new structure are conducted Monday through Friday, every half hour from 10 a.m. to 4 p.m. Between 700 and 800 persons go through the building each week.

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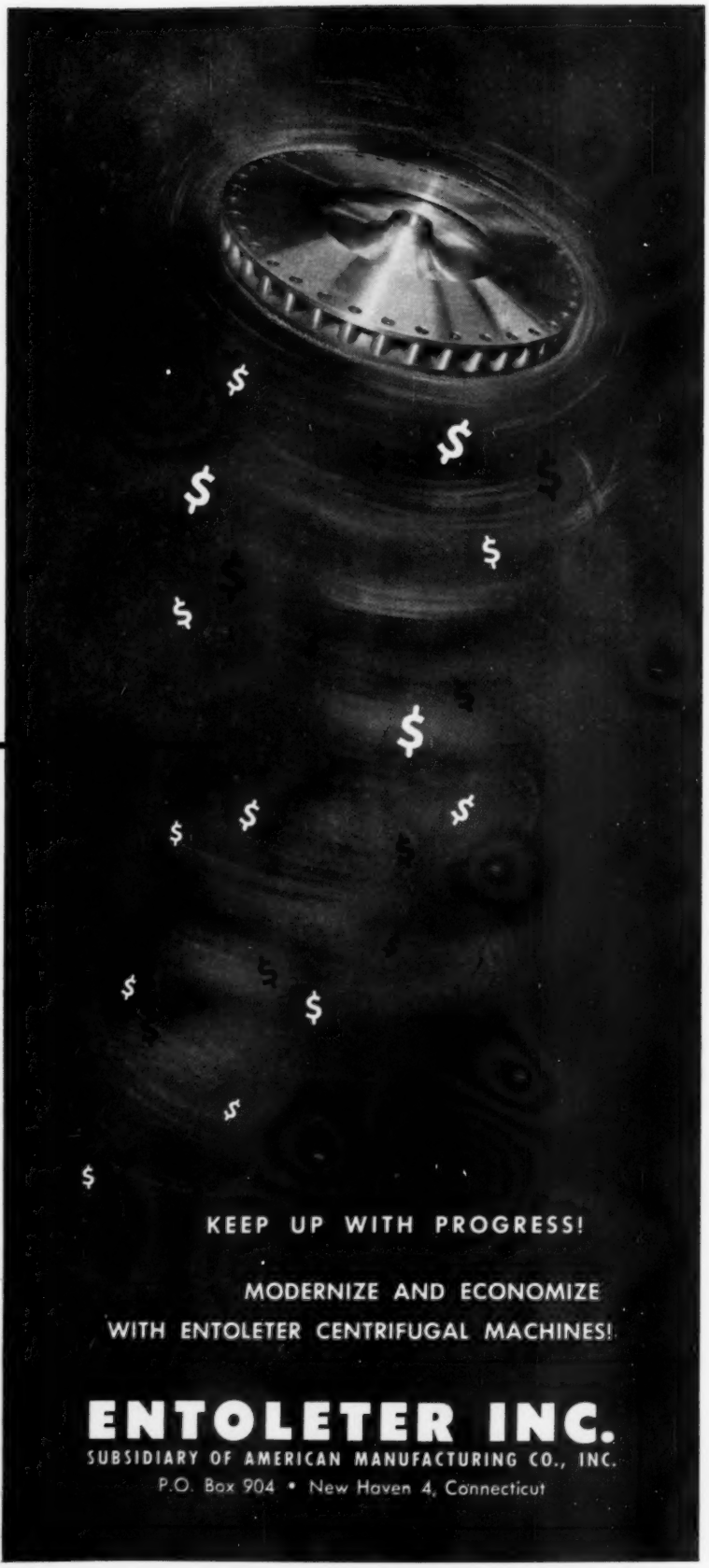
Write for information on infestation control for pressure systems and the new bulletin on Impact Milling for fine flour grinding.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EDITORIAL OPINION

Operative Milling Becomes a Profession

Stuart Butler
President

Alden A. Ackels
Vice President

Don S. Eber
Executive Vice President

R. B. Laing
K-State

REMARKABLE has been the progress of the operative miller in the past few years. More executive jobs are coming his way; a knowledge of the technological aspects of the milling business and practical experience in the plant appear to be the prerequisites of management positions in many companies today.

The operative miller has achieved maturity; he is recognized by top management as an integral and important part of the industry.

This situation is not a gift from beneficent gods; it has not come about by accident. Instead, it stems from the efforts of the operative millers themselves who, noting the importance of technological ability as a prelude to management responsibility, equipped themselves accordingly.

Many of the modern millers have come up from colleges and universities —including the industry's own academy at Kansas State University. Others, by self-improvement and on-the-job training, have fitted themselves for the wider responsibilities that have come their way. Milling is now a profession demanding its own high standard of qualification.

Playing a key part in all of this has been the Association of Operative Millers. The association will hold its 65th annual technical conference and trade show in Minneapolis May 22-25 under the presidency of Stuart Butler, Maple Leaf Mills, Ltd., Toronto, assisted by Alden A. Ackels, Bay State Milling Co., Winona, Minn. Mr. Ackels comes to the conference fresh from a visit to Europe where he toured the leading milling machinery factories and learned something of European milling techniques. Mr. Butler crossed the Atlantic for the same purpose last year. Other operative millers have been sent on similar errands, an indication of the importance management attaches to their opinions and views.

A man who has played a major part in "upgrading" operative milling as a profession is Donald S. Eber, executive vice president of AOM. It is a continuing source of pride to him to observe the recognition so deservedly accorded by management to members of the association.

Mr. Eber has continually stressed the importance of on-the-job training and the value of K-State as an educational center for millers. The association's correspondence course has attained success with hundreds of students benefiting therefrom. He is playing an important part in achieving similar recognition for K-State's courses current and planned.

The importance of on-the-campus training will be underlined for members of the association by R. B. Laing, Abilene (Kansas) Flour Mills Co., chairman of the Millers Advisory Council to K-State. With the completion of the new pilot flour mill, the university's facilities represent increased potential for the milling industry. One of the desires of Mr. Laing and his council is to attract more high school students to the profession of milling flour.

That management does recognize AOM is emphasized by the presence of such men as C. L. Mast, Jr., executive vice president of the Millers National Federation, and Mark Heffelfinger, vice president, Russell Miller-King Midas Mills, on the conference program. Mr. Mast will talk about milling goals for the next 10 years and assuredly the role of the operative miller will be important in achieving these goals. Mr. Heffelfinger will discuss the important and troublesome question of sanitation costs, another area where management depends upon the operative miller for solution.

Another indication of the importance of AOM is the number of overseas visitors coming over specially for the conference. Typical of the high caliber of the executives is Highley Sugden, joint managing director of Henry Simon, Ltd., of England. And he will be joined by executives of similar standing from Robinson of England, Buhler of Switzerland and MIAG of Western Germany. And there will be millers from other countries, too, because AOM is recognized as the top millers' fraternity in the world.

There is much to be learned from the "professionals" of the milling business in Minneapolis this month. And much to be seen at what promises to be the most outstanding trade show of a long series of outstanding shows.

C. L. Mast, Jr.
Mill Goals

Mark Heffelfinger
Costs

Highley Sugden
Mill Building Executive

Turn page For More AOM Facts

WHAT YOU'LL SEE—

At the 65th Annual Technical Conference Of the Association of Operative Millers

Here's a Capsule Report of Exhibitors, Equipment, Machinery, Services and Personnel to be seen at the Pick-Nicollet Hotel in Minneapolis May 22-25. Booth numbers refer to the floor plan on page at right

A

Air Age Equipment Corp. H-8

Air-O-Flex Equipment Co. W-5

Photographs of installations of Hydr-o-Flex semi-trailer truck dumpers, oil-hydraulically powered, electrically push-button operated; also, an improved model Hydr-o-Flex railroad boxcar grain unloader: Walter A. Kostick, Robert Zimmerman.

Anderson-Crane Co. M-3

Hardy scaling systems; Dodge Manufacturing Corp.'s transmission equipment; screw conveyor drives; Consolidated Engineering Co.'s Fluid Flow pumps: C. D. (Sandy) Hoag, Jack Crane.

B

Victor Balata and Textile Belting W-23

"Workwell" Sifter Brushes; sifter brush roll stock belting; Victor pan cleaners will be the flour mill specialties exhibited; also an assortment of various belting constructions for conveyor, elevator and power transmission purposes: Richard Vollrath, J. Irving Young, L. G. Heath.

Bemis Bro. Bag Co. M-15

Packaging Service will display the new High Speed Trim-Weigh Scale, Series 3321, part of the Bemis High Speed Packer-Aid Machine. With this equipment, large flour bags, 100-140 lb., can be brought to exacting weights by the Trim Weigh Scale after it receives bags from the Auger Packer: T. I. B. Gray, M. C. Barnes.

B-I-F Industries H-9, 10

Pneu-Weigh belt weigher; liquid proportioning blender in operation, with an animated flow diagram of the complete process: D. L. Warren, T. R. Gregg, P. A. Coffman, B. L. Anderson, H. D. Bugg, A. W. Carpenter.

E. R. Boutell and Associates W-6

High speed, completely automatic bag folder and closer for 50 and 100 lb. bags, a product of Oslo, Inc., Minneapolis E. R. Boutell, Walter Silge, Thur Orefalk.

C. W. Brabender Instruments, Inc. W-26

Brabender Quadruplex mill, employing the principle of multiple grinding with fixed corrugated rolls; mill can handle extremely small samples (down to 20 grams) and still reproduce properties in the flour milled: A. O. Schmitz.

The Buhler Corp. W-28, 29, 30, 31

The 100th anniversary of the parent firm, Buhler Bros., Uzwil, Switzerland, will be the theme for the booth. Pictures will show the progress made by Buhler, and its modern research facilities. Under the motto, "It's the details which count," several items will point out how small parts easily forgotten can be important to make a mill run perfectly: C. R. Moor, Alfons Ittensohn, Fritz Schiess, Emil Kliebenschaedel, Walter Eichele, Alfred Horst.

C

Clute Engineering Division of the Clute Corp. J-3, 4

One each of the following: Laboratory grain cleaner, display board, plastic model of a grain cleaner, and plastic model of the firm's inertia separator: Walter C. Berger, A. S. Bishard.

Crippen Manufacturing Co., Inc. W-1

Crippen grain polisher and aspirator, designed for the milling and grain processing industries to meet restrictions and specifications relevant to purity and quality of grain; the machines scrub and dry scour grains, remove hulls, crease dirt, "beeswings" insect fragments, extraneous material, weathered appearance, and the hulls of grains: Vergil Frevert, L. H. Luedemann.

D

The Day Co. M-16, 17

The type "RJ" dust filter; Air-Swept high pressure feeder: M. R. Springer, R. L. Marquardt, and others.

E

Entoleter, Inc. W-9, 10; W-16, 17

Latest developments in the field of impact milling, including the new high speed Series 14 Heavy Duty Belt-driven machine powered by a 40-HP motor; also the firm's M-3 type rotor, special V-belt drive, and a newly developed air/volute type of discharge for controlled temperature rise in flour processing; recently developed "intermeshing" or multiple impact type rotor and liner combinations; latest development in sifting equipment, a patented method for the accurate tensioning of nylon screening using air pressure to achieve constant rigidity: R. J. Hoskins, G. B. Stearns, G. L. Smutny, C. A. Whatley.

F

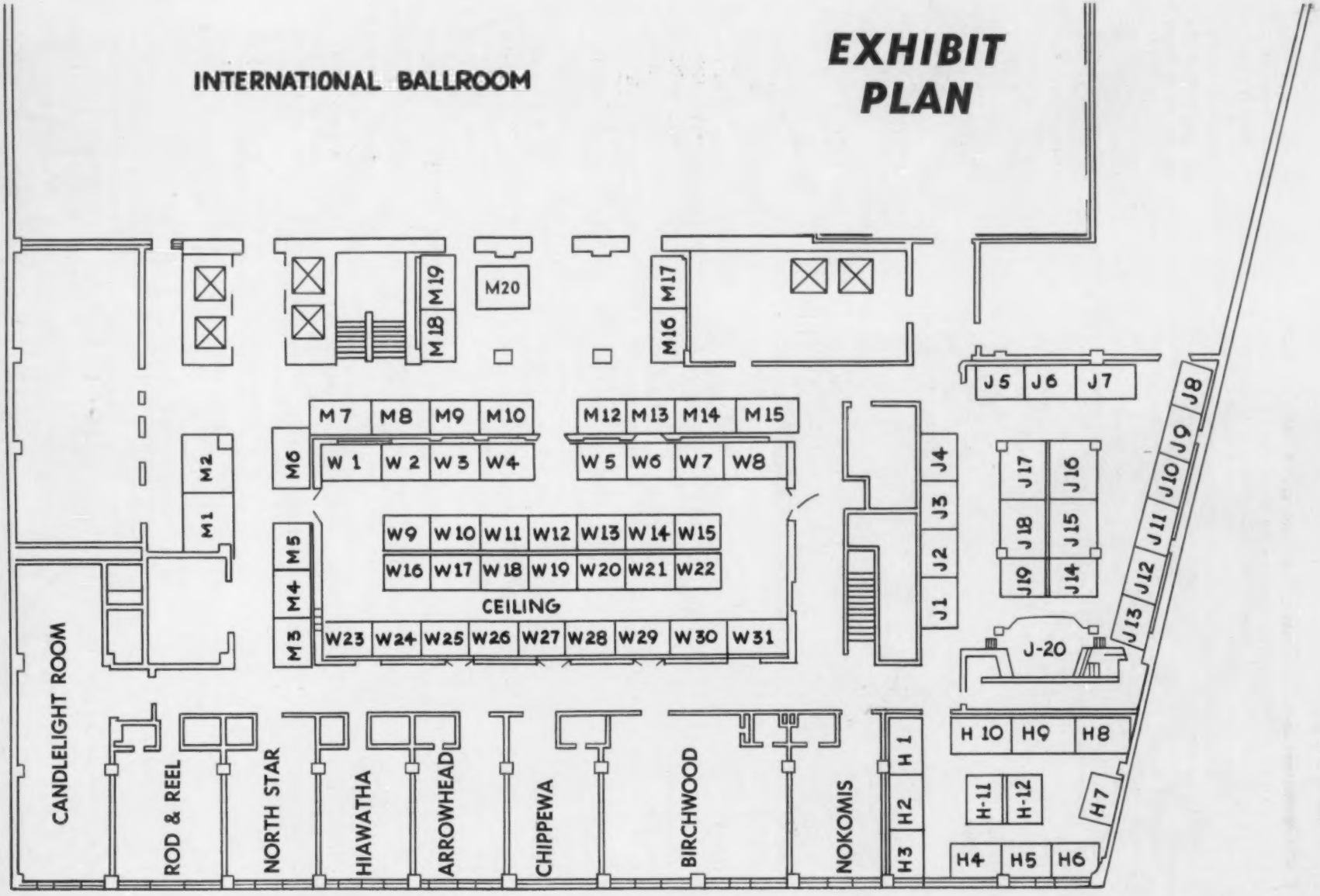
Ferguson Fumigants, Inc. W-25

A complete line of Dawson Fumigants and Dawson Concentrate Insecticides; also the firm's complete line of applicators: Mr. and Mrs. L. E. McQuillen, Roger Griggs.

Fred Forsberg & Sons, Inc. Nokomis Room

A model stoner, model gravity separator, both in actual operation, also the No. 42-VS Hi-Speed separator and the Chippewa screener. The last two will be production models, with assemblies operating to show how they work: Arthur (Manny) Forsberg, Jr., Gary Forsberg, Charles Veeck, Donald Gray, Thomas Vannerson, W. R. Carter,

EXHIBIT PLAN



Fred Shuck, and members of associated firms.

Frontier Chemical Co. J-15

Fruehauf Trailer Co. W-8

Enlarged photo-murals featuring bulk handling equipment designed and produced by Fruehauf: R. K. Morgan.

G

General American Transportation Corporation J-5, 6, 7

A full sized section of one hopper of the Dry-Flo car, demonstrated in operation. Information will also be given on General American's full line of service to both Dry-Flo and Airslide car users: John M. Gleason, LeRoy Kramer, Jr., Robert J. Perkins.

Globe Woven Belting Co., Inc. M-9

Model Bucket Elevator complete with buckets and belting; samples of various types of belts, plus brochures: Greg Herreros, Edwin Range.

Graton & Knight Co. J-2

Great Western Manufacturing Co. M-14

A single section, "Tru-Balance" floor mounted sifter will be on display: E. C. Schroeder, Raymond Bunnell.

B. F. Gump Company J-11

Pictorial display of Gump equipment in the milling industry, plus current literature on the firm's equipment: Del Creighton, C. S. Thomson.

H

Hollywood Termite Control Co., Inc. J-8

Main feature of the booth will be 18 insect drawings, considered some of the best in existence; literature on the insects will be distributed. The firm is the American and Canadian distributor of the grain fumigant, Phostoxin. On display will be a new automatic dispensing machine: J. Wilfred Gunn, O. W. (Spide) Morris, Walter Estelle.

Huntley Manufacturing Co. M-10

The 1961 "Monitor" steel screen frames; a "quick release" brush arrangement now available on most models of Monitor Grain Separators; a variety of machine and parts data: Lester Johnson, Oscar Olsen, other sales personnel.

I

Industrial Fumigant Co. J-9

Labor saving equipment for flour mills: T. F. Winburn, T. J. Olsby, A. C. Quigg, J. H. Reeves, C. O. Arnold

Industrial Processes, Inc. J-14

K

Kice Metal Products Co. J-20

Kice "Pneumatix" systems, showing items of equipment developed since the 1960 conference; a working cut-away model of the "Jet-Under" airlock injector; the Kice "Speed Spout" prefab fittings especially made to meet mill sanitation requirements will be featured. Also on display will be the Multi-Aspirator, industrial fans, cyclone collectors and separators; installation drawings and pictures of Pneumatix Multi-Lift systems installed in a number of U.S. mills during 1960 and 1961, including the mill at Kansas State University: Russell Kice, Jack Kice.

L

E. H. Leitte Co. M-20

The Spotfume Applicator will be demonstrated; the manner in which the same Spotfume Applicator system can be used as a residual sprayer will also be shown: E. H. Leitte, Wayne D. Stahl.

M

Merck & Company, Inc. W-7

Lysine and enrichment products for the milling industry: Paul Weeke, Clint L. Brooke, Paul A. Hammes, Robert B. Pace, B. Wayne Carmichael.

MIAG Northamerica, Inc. M-1, 2, 6

A production size purifier; laboratory size purifier; vertical bran finisher and an impact machine, the "Strato-De-Agglomerator." The De-Agglomerator and the laboratory purifier are new developments only recently available: Dr. Heinz Gehle, MIAG of Brunswick, Germany; Hans J. Koch, Guenter Zimmer, Walter Storch, Fred Zenker, Wolf Schnasse.

Montgomery Belting & Leather Co. W-6

The firm's regular line of belting will be on display: C. E. Danielson, C. E. Montgomery.

N

C. Emery Nelson, Inc. H-2

Sutorbilt blowers used in pneumatic conveying systems; exhibit will include the standard California Series blowers; a newer series 88 blower which is a compact high-speed light-weight blower used in the bulk transport pneumatic conveying system: R. T. Kelton, C. Emery Nelson, Les Oare.

Noll Engineering Co. J-10

Nor-Vell, Inc. J-17, 18

P

Pulverizing Machinery Division H-1

OFFICERS AND HOSTESSES talk over plans for the entertainment of the ladies attending the 65th annual technical conference and trade show of the Association of Operative Millers in Minneapolis May 22-25. Left to right, with their husbands' firm affiliations in parentheses, are: Mrs. James C. McNeil (Pillsbury Co.), Mrs. Paul McSpadden (Commander Larabee Milling Co.), Mrs. Douglas Merritt (Commander Larabee), Mrs. E. Stanley Dybevick (International Milling Co.), Mrs. Robert Ellis (International), co-chairman, Mrs. George B. Wagner (Pillsbury), co-chairman, Mrs. George Tooker (Commander Larabee), Mrs. Albert Gunner (General Mills, Inc.) and Mrs. George E. Swarbreck (THE Northwestern MILLER), treasurer. Unable to be present when the picture was taken were Mrs. Lyle P. Carmony (Sterwin Chemicals, Inc.) and Mrs. O. J. Zimmerman (Smico Sales). All the wives of District 4 members are serving on the Ladies' Committee.

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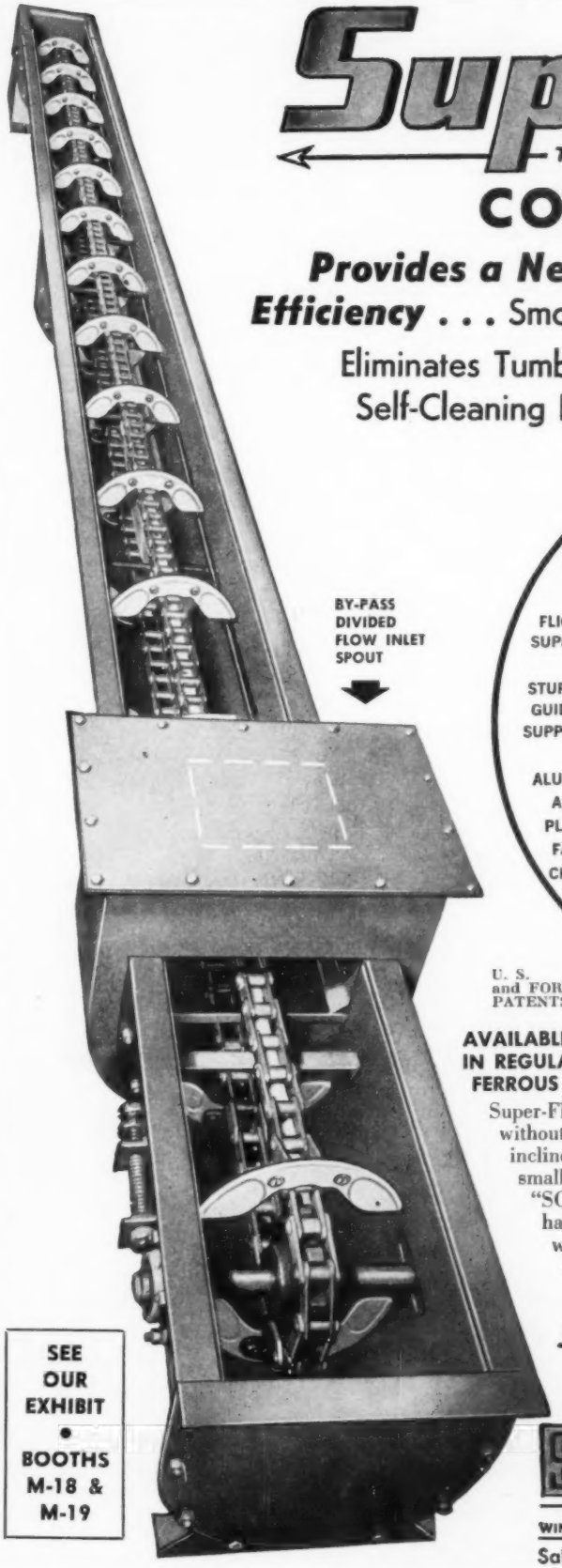

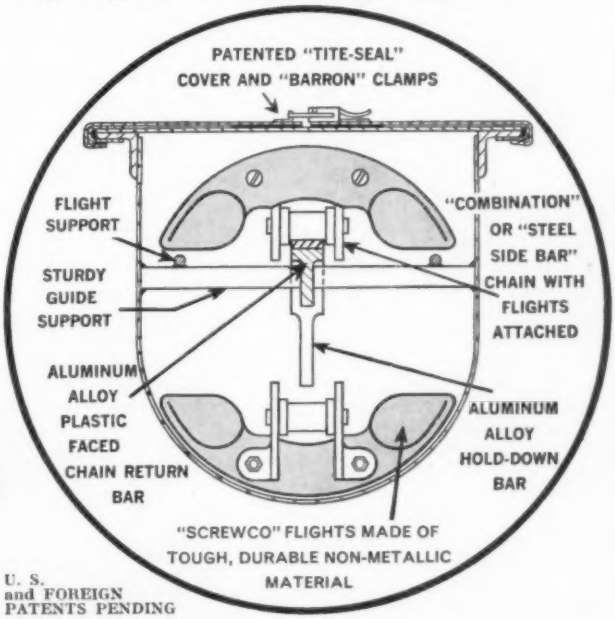

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R

Richardson Scale Co. M-4

A bin level indicator which can be used in any size bin or elevator to show the amount of material in such bin; material on the new Richardson bulk hopper scale: Malcolm McDermid, Gerry Whitley, W. L. Hamilton, W. M. Young.

Thomas Robinson & Son, Ltd. J-1

George A. Rolfes Co. M-5

The Monitrol electronic inventory system, displayed a year ago, has undergone further development and will be displayed again. In addition, the firm will show all types of aeration equipment for flat and vertical storage. There will also be a complete line of electronic multi-point scanning equipment: George Rolfes, William Steuber, Frank Judge, Larry E. Barnes.

S

Salina Manufacturing Co., Inc. W-2, 3, 4

A full size working model of the Universal round bin along with the current model 930 Airslide car unloader; also a section of the company's aluminum drop bottom screw conveyor and numerous pictures of recently completed bulk flour facilities.

Screw Conveyor Corp. M-18, 19

Super-Flo conveyors, display panels and literature on other products, such as Hammond Screw-Lifts, HWS in-stock bucket elevators, Kewanee hydraulic truck dumpers, Winona elevator buckets and other products: Ellis P. Maas, Walden A. Witt.

Simon-Carter Co. M-12, 13

A Simon Type "S" Purifier will be in operation, complete with the Day RJ Type Filter Dust Collector for demonstration purposes; also the "Bushelmaster" developed to continuously measure and record the bushel weight or test weight of wheat; a Carter disc model to show length sizing; a Carter Precision Grader Model demonstrating thickness sizing, such as removal of pin oats: Donald Deane, George Durkot, Hal Underwood, M. C. Cecka, Richard Barnes, Gerald Griffin, Alan Croft, James Tyler, E. O. (Link) Anderson, Dan Strachan, M. L. Olson.

Smico W-11, 12, 13, 14, 15, 18, 19, 20, 21, 22

The new Smico-Morros Continental double roller mill; a Smico-Morros streamlined purifier; vertical bran duster; pneumatic arrangement; spouting arrangement and fittings; agitators and splitters: Frank Shidler, O. J. Zimmerman, Dick Pierson, L. H. Patton, Ed Cecka, Bill Ball, George Smutny, Charles Veeck, Thomas Cook, E. C. Carter, Lon West, William Wyatt; attendance from the Mexico City affiliate will include Abel Morros, Phil Salete and Joseph Almedia.

Sterwin Chemicals Inc. M-7, 8

Hy-Kure equipment; chlorination equipment and a bank of dry chemical feeders just as they will be installed in flour mills: R. S. Whiteside, L. R. Patton, Lyle P. Carmony, H. H. Bonham, Paul McGrath, Warren F. Keller.

Straight Engineering Co. J-12

Lee H. Drake will be in attendance.

Sturtevant Mill Co. J-16

Two illustrated panels depicting the firm's Pulver-Mill and one of its new flour refining systems; the company indicates that it may unveil a major milling development at the conference: Austin T. Drake, William T. Doyle.

T

W. S. Tyler Co. W-24

Samples of wire cloth specifications from the firm's line of Woven Wire Screen, including all grades of Dur-Loy and stainless steel bolting cloth and tinned and stainless steel mill screen; available for inspection will be samples of wire cloth sifter frames which have been in actual service for many years. The Ro-Tap Testing Sieve Shaker and Tyler Sieves will be displayed along with data on the firm's line of production screen equipment.

U

Universal Milling & Machinery, Ltd. Hiawatha Room

A 25 h.p. high efficiency hammermill will be exhibited; the machine is a recent development: Leslie Palyi, and other members of his staff.

W

Western OH-ZO-DRY J-19

Harold Fenberg will be in attendance.

K. I. Willis Corp. W-27

Superior Elevator Buckets with particular emphasis on the all-new, all-aluminum elevator bucket; assistance with engineering and operating questions and problems will be supplied by members of the firm manning the booth: LeRoy P. Krueger, Harry D. Biehl. «

EDITOR'S NOTE: All exhibitors are listed as of the time of publication, although descriptions of exhibits and personnel were not available in several instances.

Export Association Reelects Officers, Names Directors

The Flour Millers Export Assn., meeting in Washington, has reelected all officers for the current year.

Named for another term were: William R. Morris, Jr., General Mills, Inc., Minneapolis, president; L. W. Walden, International Milling Co., Minneapolis, vice president; W. J. DeWinter, Jr., Russell Miller-King Midas Mills, Minneapolis, treasurer; I. L. Engen, the Pillsbury Co., Minneapolis, assistant treasurer, and A. C. Bredesen, Minneapolis, secretary.

Directors of the association, also named at the meeting, are: Mr. Morris; Mr. Walden; Mr. DeWinter; William Spoor, the Pillsbury Co., New York; Dugald A. MacGregor, Centennial Mills, Inc., Portland, Ore.; Francis McKown, Kansas Milling Co., Wichita, and James Skidmore, J. Allen Smith & Co., Knoxville, Tenn. «

House for Sale . . .

Want to buy a house in the state of Kansas or Missouri? Or sell? If you do, then the lady to call is Della Eber, a saleslady with the Irene C. Peck realtor firm of Kansas City. Mrs. Eber, wife of Donald S. Eber, executive vice president of the Association of Operative Millers, is now licensed for real estate business in both Kansas and Missouri. She explains: "With two of the children married and another in the service, and Donald traveling thousands of miles a year on AOM business, I felt the need of something to do. And this is it."

Della Eber

Mrs. Eber, who finds she can fill her hobby of meeting and liking people in the real estate field, will still have time for AOM affairs. And whenever possible she will accompany her husband to meetings. Next up on her agenda is attendance at the 65th annual technical conference and trade show in Minneapolis May 22-25. «

HOW TO LICK A BIG INSECT PROBLEM WHILE IT'S STILL SMALL

Insects that hide in walls, structural cracks, and debris are a dangerous source of infestation when clean grain comes in. Here's how to use Premium Grade Malathion to prepare a clean storage.

Premium Grade Malathion controls all major grain insects. Here's how to use it to make sure your grain comes out of storage as clean as it went in.

Even before spraying—do this:

Sweep thoroughly all areas where grain has been stored or conveyed —bins, elevators, trucks, conveyors and machinery, boxcars, etc. Grain insects live and breed in old grain and debris *long after* storage spaces and equipment have been emptied. All sweepings and debris should be burned. Keep the grounds around bins as free of grain and debris as possible.

Finish the cleanup—spray Premium Grade Malathion

When all areas *look* clean, spray them *insect*-clean . . . with Premium Grade Malathion. Mix one gallon of 57% emulsifiable liquid with 25 gallons of water.

Spray all the areas you cleaned up—*outside* the storage as well as inside . . . walls, eaves, and foundations, with special attention to hard-to-reach parts of the bin or building. Spray to the runoff point. Make sure the spray is forced into cracks and crevices.

Wide-range insect control

Premium Grade Malathion kills adults and larvae of all major grain insects. These include Indian meal moth, confused flour beetle, saw-toothed grain beetle, granary weevil, rice weevil, rusty grain beetle, lesser grain borer, and flat grain beetle.

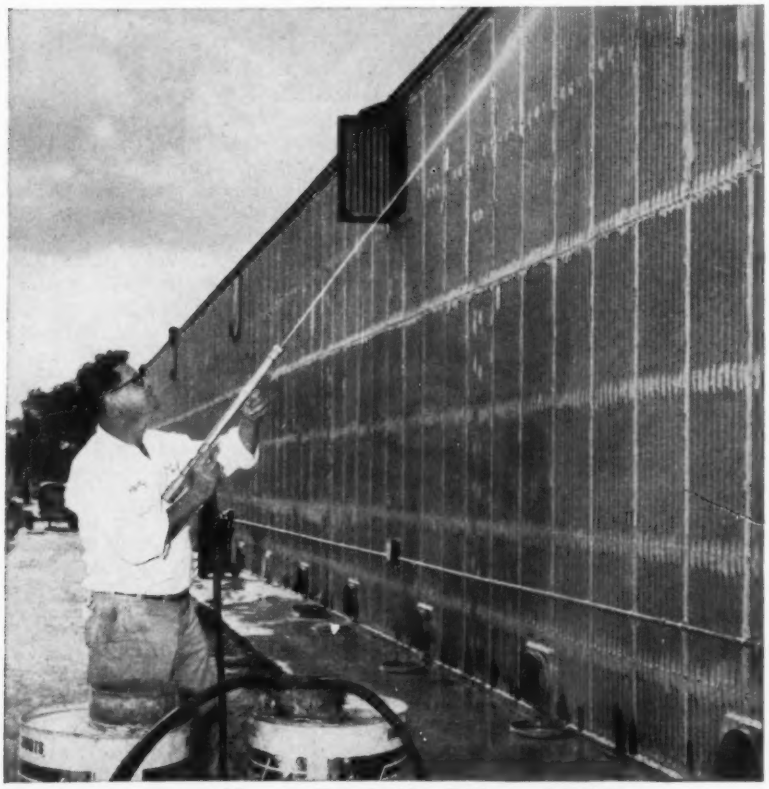
Malathion protection should be used to *supplement* fumigation. Because Premium Grade Malathion is a protectant, it cannot take the place of a fumigant. Grain should be fumigated with Cyanogas G-Fumigant or Liquid HCN to kill *all* growth stages of insects, including eggs.

No adverse effects on grain

When used according to directions, Premium Grade Malathion has no effect on grain germination, baking qualities, or milling qualities. It does not produce off-flavors in products manufactured from treated grains.

Note: Only formulations using Premium Grade Malathion may be used on or around stored grains.

Premium Grade Malathion is also used for protection of grain mass and for surface protection of stored grain. For additional information, write American Cyanamid Company, Agricultural Division, 6100 East 60th St., Kansas City 30, Missouri. Ask for free leaflet "Protect Stored Grain with Malathion" —PE 5045.



Be sure to spray outside as well as inside all bins and buildings.

The label instructions on Cyanamid products, and on products containing Cyanamid ingredients, are the result of years of research, and have been accepted by Federal and/or State Governments. Always read the labels and carefully follow directions for use.

CYANAMID
MALATHION
INSECTICIDES

CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE

Millers National Federation Holds Annual Session in Washington's Legislative Whirl

Impact of Government on Business Strongly Evident

GOVERNMENT DECISIONS today being more influential on flour milling than at any time since World War II, it was particularly appropriate that the 1961 convention of the Millers National Federation was held in Washington, the "heartland" of government, at a time when the new administration was readying its program for the four years ahead.

MNF sessions were carefully planned to take advantage of this circumstance, and speakers from the U.S. Department of Agriculture, Department of State, and such administrative agencies as the Federal Trade Commission, the Food for Peace Program, discussed policies and made forecasts in their areas. The governmental "flavor" carried into the social area, too. Senators, representatives and guests from the administrative side attended MNF's presidential reception, and Sen. Barry Goldwater, Arizona, addressed the annual banquet.

Continued Growth, Strength

The federation itself evidenced continued growth and strength. Nine new members recently joined, some having been out of MNF several years. Ellis D. English, Archer-Daniels-Midland Co., president, predicted that others were "nearly in the fold." Membership stands at 134 firms involving well over 90% of national flour production.

Attendance at the convention, too, topped recent years, and was augmented by many wives attracted by sightseeing in Washington.

CONVENTION COVERAGE

In attendance at the Millers National Federation meeting in Washington for THE Northwestern MILLER were Paul L. Dittemore, New York; Wilfred E. Lingren and George W. Potts, Minneapolis, and Martin E. Newell, Kansas City.

President's Address

In his opening address, Mr. English outlined numerous ways in which "big government" today sets conditions under which millers must work, in raw materials, transportation, markets, product standards, and many other ways. While there is no one answer to problems created by this situation, he said that the industry could—and should—use the federation as its spokesman in dealings with the government.

Speakers from USDA were led by the top man himself, the new secretary, Orville L. Freeman, who addressed the opening luncheon. Mr. Freeman said that he had been shocked by encounters with many people who do not believe farm income has fallen disastrously. There is a false impression in the public mind on this score, he said, citing figures that farm income has dropped 19% since 1952 and bears the lowest ratio to national income since 1930.

"Consumption of farm commodities is not going to catch up with output in the U.S. because of vast gains from constantly improved production technology," predicted Mr. Freeman. "A voluntary program of output control is the only solution. The problem of growing surpluses, particularly of grains, is urgent," he declared, adding that Congress is not ready to continue these increasing accumulations much longer.

"Under proper control, the nation's great food production capacity can mean much to our national security and can be an important factor in world affairs," the secretary stated.

The new administration's plans in this regard are largely in the hands of George McGovern, administrator of the Food for Peace Program. Mr. McGovern explained policies to the millers, pointing out that exports under his program will not jeopardize commercial sales nor contribute to delays by recipient countries in expanding their own food output. Wheat and wheat products form a cornerstone of the Food for Peace Program, he said, and estimated that 450 million bushels of grain would be involved. Later, he added, it will be necessary to "broaden the food package" to include other farm commodities in the program in a bigger way as diversity of food needs develops in the various countries.

George McGovern

Challenge to America

The challenge to America in the mass hunger that exists in many parts of the world was cited by Mr. McGovern, such as areas in Africa, Asia and South America, where food scarcity is becoming worse as population gains outrun more slowly growing agricultural production. Aim of the program, he said, is to help poorer countries develop their own resources, but this will take time. He concluded by saying, "We will be in this business for some time to come."

Edward M. Martin, assistant secretary of state for economic affairs, said that industrial growth at home can be a major help to foreign economic efforts, and that a high level of commercial sales is necessary to keep the dollar sound, while extending foreign aid. He indicated that officials feel they have stopped the "run on the dollar" which brought such a heavy loss of U.S. gold the past year.

James Hutchins, Jr., of USDA distribution branch, explained government efforts toward free food distribution on the home front. "Eight pilot plant food stamp programs are being tested as a guide to 'more food for more people'," he said.

Pitfalls for flour millers in the federal trade laws were charted by the new chairman of the Federal Trade

WHEAT FLOUR INSTITUTE REPORT PRESENTED

The Wheat Flour Institute, promotional arm of the Millers National Federation, has finished another active year. Results of its work were presented to the federation's membership during their annual meeting in Washington by Robert Harris, Harris Milling Co., Owosso, Mich. In addition to Mr. Harris' report, there were slides, prepared by Howard Lampman, head of the WFI staff, showing the wide scope of educational and promotional work completed during the past year.«

Why—

WORLD'S MOST UNIFORM FLOUR TREATMENT STARTS WITH FROZEN ClO_2 HYDRATE

Hy-Kure® Blockette—purified ClO_2 hydrate in frozen form.

HY-KURE Blockettes and equipment provide the world's most uniform flour treatment because every step in the operation is completely controlled. And that control starts with the making of ClO_2 solution. To get constantly uniform solutions, the process starts with exclusive, scientifically uniform Hy-Kure Blockette . . . ClO_2 hydrate in solid, frozen form. One Blockette is exactly like another, a pre-determined quantity and strength of ClO_2. Immersed in a constantly uniform quantity of ordinary tap water in Hy-Kure vat, Blockette dissolves, produces world's most uniform ClO_2 solution . . . never any guess work, measuring, mixing or generating gas.

The Blockette is symbolic of the *complete* control in every phase of flour maturing with Hy-Kure.

From uniform solution to uniform ClO_2 gas-air mixture and uniform dispensing through pin-point controls to individual agitators, Hy-Kure is automatic, precise, consistently uniform.

Hy-Kure eliminates old gas generator, and need for constant watching, checking, resetting of controls . . . can be installed without interruption in flour production.

GET THE FACTS ON HY-KURE SIMPLICITY, UNIFORMITY, ECONOMY
from your Sterwin Representative or write, phone, wire direct:

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Commission, Paul Rand Dixon, who said the administration hopes there is room for expansion by the small flour miller, whose share of the market has been declining. Mr. Dixon cited some of the pitfalls:

1. It is unlawful to sell two competing grocer customers at different prices, unless justified by lower costs or to meet a competitor's price, the latter being "seldom proved" in court. Free deals of various kinds count toward lowering the price.

2. It may be unlawful to sell at a lesser price in one instance than in another if it lessens competition or injures local business.

3. It is unlawful to permit favored customers to book orders at an "old" price for longer periods than "those usually permitted."

4. Advertising allowances, resale help, etc., must be the same for all.

Not all government speakers talked of laws, regulations, subsidies and other strictures. Dr. Ruth Leverton, associate director of the USDA Institute of Home Economics, brought some cheering news. Pointing to starch as a major carbohydrate component of flour, Dr. Leverton said experiments in USDA laboratories have shown that rats are able to escape deleterious effects from heavy fat diets when their carbohydrate source is starch rather than sugar. Excessive fat consumption has been blamed for the high U.S. rate of circulatory diseases, which have increased as fat percentages have risen. Dr. Leverton pointed out that during this same period starch consumption has dropped sharply in U.S. diets, while sugar intake has gone up. She left the implication this might prove that this starch-sugar change could be as much or more of a factor than fat intake itself in artery deterioration.

Dr. Ruth Leverton

Dr. Leverton said studies are now under way, with a group of young men being given starch part of the time and sugar part of the time to see what the results will be. She made a plea for more basic research on foods, pointing out that very little is known about the bodily use of starch and only a very little more about protein. «

SIX MILLING FIRMS have joined the federation since the last convention: DCA Food Industries, Inc., Ellicott City, Ind.; American Flours Co., Newton, Kansas; Hunter Milling Co., Wellington, Kansas; Spanglers Flour Mills, Inc., Camp Hill, Pa.; Williams Milling Co., Inc., Quincy, Mich., and Terminal Flour Mills Co., Portland, Ore. Three additional firms have indicated intentions to join: California Milling Corp., Los Angeles; Colorado Milling & Elevator Co., Denver, and William Kelly Milling Co., Hutchinson, Kansas.

DIRECTORS APPROVED continuation of same dues schedule as in past period and budgets of $172,500 for the federation, $302,150 for Wheat Flour Institute, $77,800 for export programs. Figures compare with $162,340, $271,000 and $74,400, respectively, last year. Directors also okayed policy of supporting any state legislation limiting package sizes to 2, 5, 10, 25, 50, 100 and multiples of 100 lb. Action was taken because of proposed legislation in Virginia omitting these limitations. Transportation committee was authorized to oppose certain proposed legislation, effect of which would be to forbid rail rate reductions when shown that such would curtail business of competing transportation media such as barge and truck lines.

RE-ELECTION OF MNF directors retains **R. D. Zumwalt**, Burrus Mills, Inc., Dallas, as first vice chairman; **Fred M. Atkinson**, Atkinson Milling Co., Minneapolis, as second vice chairman. Staff officers were reelected: **C. L. Mast, Jr.**, executive vice president; **John J. Sherlock**, secretary-treasurer, and **Marjorie Loop**, assistant treasurer. **Eldon Addy**, Kansas Milling Co., Wichita, was elected to retirement committee for three years, replacing **C. G. McClave**, Montana Flour Mills Co., Great Falls, whose term has expired. Three new members were elected to executive committee: **Ben J. Greer**, the Pillsbury Co., Minneapolis; **Malcolm B. McDonald**, International Milling Co., Minneapolis, and **G. Murray Ross**, American Flours Co., Newton, Kansas. They succeed **James Rankin**, formerly of Pillsbury; **Elmer W. Reed**, now retired from Kansas Milling Co., and **Charles Ritz**, International Milling Co. In recognition of his industry achievements and long service to the federation, Mr. Reed was elected an honorary MNF member. Carrying its deep consideration further, MNF presented Mr. Reed and Mr. Ritz special service plaques during the annual banquet. **John L. Locke**, president of Fisher Flouring Mills Co., Seattle, a former federation president, prepared the awards.

LATEST PLANS FOR the May 18 dedication of the new pilot flour mill at Kansas State University were discussed at a full committee session of the Millers Advisory Council, with **R. B. Laing**, Abilene (Kansas) Flour Mills Co., presiding. **Dr. John A. Shellenberger**, head of K-State's Department of Flour and Feed Milling Industries, explained the suggested curriculum in elevator technology and the tentative curriculum in baking technology. **J. Allen Mactier**, Nebraska Consolidated Mills Co., Omaha, reported good progress in contacting prospective students. Commented Dr. Shellenberger: "This effort is moving more favorably than for some time." He noted also that seven scholarships are now filled, with the remainder unfilled. Council members are to submit a new school name to Mr. Laing or Dr. Shellenberger.

LUNCHEON SESSION of the National Soft Wheat Millers Assn. was addressed by **Philip A. Hart**, senator from Michigan, with supporting remarks from his agricultural advisor, **William Welch**. Both urged millers to present a true case to Congress for clear-cut understanding of the problem of soft wheat supply shortage in the face of an abundance of all wheats. The association elected officers: **J. Kirk Ring**, Roanoke City Mills, Inc., Roanoke, Va., president; **F. R. Johnson**, Southeastern Mills, Inc., Rome, Ga., vice president; **Rondal M. Huffman**, Chicago, secretary, and **Malcolm W. Fuhrer, Jr.**, Fuhrer-Ford Mill Co., Inc., Mt. Vernon, Ind., treasurer. Executive committee includes: Mr. Ring, Mr. Johnson, **Dorris Nunn**, Chas. Nunn & Sons Co., Evansville, Ind.; **S. T. Chase**, Lexington (Ky.) Roller Mills, Inc., and **W. F. Toevs**, J. Allen Smith & Co., Knoxville, Tenn. Directors include Mr. Toevs and **S. E. Taylor**, Lynchburg (Va.) Milling Co.; **C. B. Knappen, Jr.**, Knappen Milling Co., Augusta, Mich.; **E. E. Powers**, Russell Miller-King Midas Mills, Alton, Ill., and **E. C. Rexrode**, Austin-Heaton Co., Durham, N.C. «

3 GOOD REASONS

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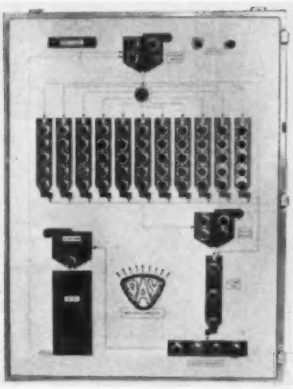
★ 80 YEARS' EXPERIENCE goes into the design and manufacture of every DAY product and system.

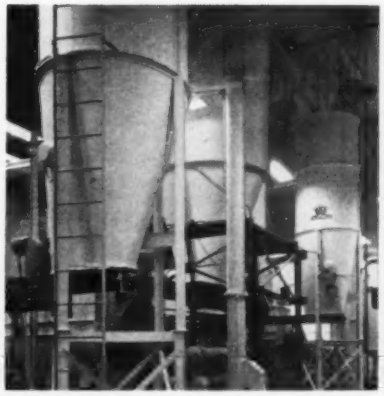
★ COMPLETE SERVICE—DAY is the only manufacturer that designs, builds and installs pneumatic conveying systems, flour storage and use tanks and dust control equipment and systems.

★ PROVEN PERFORMANCE—Hundreds of mills (and bakeries) have been equipped by DAY. Large, medium or small; automated or advanced processing, whatever your particular requirements are, DAY will assure you of complete satisfaction at the lowest possible cost.

DAY EQUIPMENT FOR FLOUR MILLS



PNEUMATIC CONVEYING — DAY Control Panel (above) — An efficient link between rail car and mill, storage or process. DAY can provide you with complete pneumatic conveying systems for receiving, inplant handling, or shipment.



FLOUR STORAGE — Three DAY use tanks (above) for flour. This plant is also equipped with DAY horizontal tanks which have a storage capacity of 485,000 pounds of flour. DAY engineered, fabricated and installed the complete job.

DUST CONTROL — DAY "AC" dust filters (above, left) unhoused units. Many of the nation's leading millers and food processors depend on DAY for dust control equipment and systems. A nation wide survey reports DAY dust control equipment is a predominant choice (nearly 10 to 1) over any other brand.

Discuss your mill's requirements with a DAY application engineer. He will provide you with specific information and a helpful planning service. For useful information about DAY equipment, clip and mail coupon toDAY. You will receive free literature about DAY services and products.

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Contributors of Equipment, Machinery
Pilot Flour Mill

KANSAS STATE UNIVERSITY
Department of Flour and Feed Milling Industries

Aerzener Maschinenfabrik	G.m.b.H—blower for pneumatic lift.
Allen Bradley Co.	20 combination starter and disconnect electrical controls and 20 push button stations with pilot lights.
Allis, Louis, Co., The	6 electric motors and one motor—variable speed drive.
American Air Filter Co.	Amer-Jet Filter—4 air lock feeders.
American Blower Division of American Standard	No. 19AH fan.
American Moistening Co.	Automatic humidity control.
American Stock Gear Div. of Perfection Gear Co.	2 gear reduction units.
Archer-Daniels-Midland Equipment Division	2 60-bu. grain bins.
Atkinson Milling Co.	Brabender laboratory mill
Bahnson Co., The	2 automatic humidifiers.
Bemis Bro. Bag Co.	Auger-Ette flour packer; dual sewing machine & belt bag conveyor.
Bin-Dicator Co., The	12 Bin-Dicators.
Brabender, C. W., Instruments, Inc.	1 Quadruplex experimental mill. 1 Labofix laboratory grain cleaner.
Buhler Corp., The	Double purifier; roller mill.
Burrows Equipment Co.	Brown-Duval moisture tester.
Capitol Corrugating Co.	Make-up of sifter cloths.
Clute Corp., The	Offered pneumatic conveyor.
Creason Corrugating & Machine Co.	Corrugating 7 pairs of rolls.
Dawson, J. Carl, & Associates	Fumigation equipment.
Day Sales Co., The	24RJ48 Day filter dust collector; Pneu-Spout fittings and valves.
Doerr Electric Corp.	2—1½ H.P. motors.
Ehrsam, J. B., & Sons Manufacturing Co.	15' 9" screw conveyor; Dracon conveyor 28' 6" and drive; 30' 6" screw conveyor and drive. 9—Two-way valves.
Entoleter, Inc.	2—Entoleter scourer, aspirators. 1—27" Entoleter; 1 flour Entoleter.
Eriez Manufacturing Co.	Feeder, 3-speed control.
Falk Corp., The	2—Shaft-mounted gear reducers.
Fincher, W. R.	1—Purifier.
Fischer & Porter Co.	2—Indicating Flowrator meters.
Forsberg, Fred, & Sons, Inc.	1—Vacuum stoner and fan. 1—Vacuum gravity separator & fan.
Gates Rubber Co.	V-belt drive for blower.
General Mill Equipment Co.	1—Laboratory sifter.
General Mills, Inc.	2—Fans and motor drives.
Gerbing Mfg. Corp.	1—Variable speed drive.
Goodyear Tire & Rubber Co.	67—V-belts.
Graham Transmissions, Inc.	1—Variable speed drive.
Graton & Knight Co.	19—Flat belt drives.
Great Western Manufacturing Co.	2—Sifters, 2x14 with motor drives.
Grief-Werk	Bran duster and shorts duster.
Gump, B. F., Co.	Bran duster and shorts duster.
Hot Spot Detector Co.	Temperature detection system for 15 bins.
Howes, S., Inc.	1—Suspension scourer.
Huntley Mfg. Co.	Offered grain cleaning machine.
Industrial Machinery Co., Inc.	1—Fan.
International Milling Co.	1—9x24 rollermill; 1 bucket elevator; 2 flour trucks.
Jay Distributing Co.	1—7.5 H.P. motor and drive.
Kice Metal Products Co.	4—Pneumatic lifts in cleaning house. 1—Aspirator (complete); 1—24 lift pneumatic system (flour mill).
Kolker Frieurfabrik und Fabrik, Gelochter Bleche	Offered grain cleaners.
Kressilk Products, Inc.	Sifter and purifier cloths.
Librawerk	1—Automatic flour scale.
Lovejoy Flexible Coupling Co.	Auto tension motor bases.
Merck & Co.	Microscope.
MIAG Northamerica, Inc.	1—Roller mill; 1 pneumatic lift.
Minneapolis-Honeywell Regulator Co.	Controls for wheat conditioner and cooling tower.
Murdock Electric & Supply, Inc.	Power transmission supplies.
New York Blower Co.	1—Centrifugal fan.
Nor-Vell, Inc.	1—Sifter 2x14.
Nutting Truck & Castor Co.	1—4-wheel wagon truck.
OCRIM (Cremona, Italy)	3—Roller mills.
Randall Mfg. Co.	8—Tempering bins.
Reynolds Metals Co.	6,800 ft. aluminium pipe, 2", 2½", 3" and 4" diameters. 2—10" extruded channels.
Richardsen Scale Co.	2—Auto. wheat scales and timers.
Robinson, Thomas, & Son, Ltd.	1—Double purifier; 1 brush machine.
Ross Machine & Mill Supply, Inc.	2—Roller mills.
Salina Mfg. Co.	2—Pneumatic systems.
Schwitzer Corp.	4—Blowers (pneumatic).
Screw Conveyor Corp.	2—6" screw conveyors. 1—4" screw conveyor. 1—Wheat conditioner and cooling tower.
Simon-Carter Co.	1—No. 4 Millerator. 2—1821 Carter disc separators. 1—Precision grader. 1—1522 Carter disc. 1—Carter duo-aspirator. 1—82 Sifter stubs and accessories.
Simon, Henry, Ltd.	1—Double purifier.
Smico, Inc.	Wheat washer; suction filter; 2 sifters, 2x14; rebolt sifter; bran duster; shorts duster; double flour agitator.
Sprout, Waldron & Co., Inc.	Batch mixer.
Sterling Elec. Motors, Inc.	1—¾ H.P. variable speed drive.
Sterwin Chemicals Inc.	Chlorinator, complete. 2—Chemical feeders, with blower system.
Superior Division of Daffin Corp.	3—C-52 single cylinders.
Tobler, Ernst & Traber	Sifter cloths.
Triplette & Renaud	Sifter cloths.
Toledo Scale Co.	2—Suspension hopper scales.
Turner, E. R. & F.	1—Roller mill.
Tyler, W. S., Co.	1—Ro Tap sifter and complete set testing sieves.
U. S. Electric Motors, Inc.	1—2 H.P. gearhead motor. 3—Motors, 1 to 1½ H.P. Varidrive.
Utah Machine & Mill Supply, Inc.	1—7"x14" double roller mill.
W-W Grinder Corp.	4—Spout magnets.
Wallace & Tiernan Inc.	9" Belt scale feeder. Chemical feeder. 9" Belt scale meter. 10—Volumetric feeders. 1—Chlorinator complete.
Wichita Flour Mills, Inc.	1—Impact grinder.
Williams, H. R., Mill Supply Co.	100—Nylon sifter socks.
Worthington Corp.	37—"V" belt sheaves.

The above list is complete according to available knowledge though additions may be made at a later date. In addition, there have been many contributions of money and services and the complete list of donors will be published at the time of the dedication ceremonies to be held at Kansas State University in Manhattan on May 18.

ON CALL TO THE PROCESSING INDUSTRIES

If there is magic in dependable, reliable service, it's a magic compounded from skill, experience and modern know-how. When projects or problems arise in grinding, air conveying and product recovery, more and more processors in all parts of the country are summoning MIKRO-Products. They have discovered, as you will, that MIKRO-trademarked equipment—and the highly-trained specialists who design, produce and service it—can work wonders in meeting your budget and production requirements.

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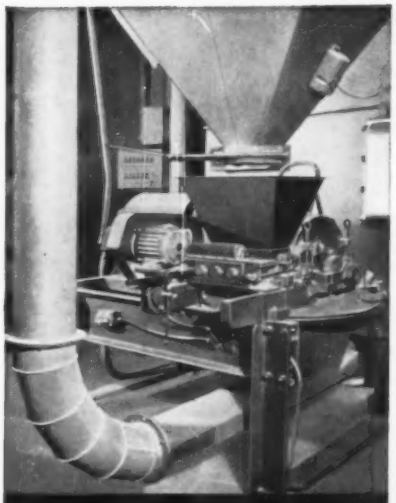
REPRESENTED THROUGHOUT THE WORLD IN SALES, SERVICE AND MANUFACTURING FACILITIES.



MEER CORPORATION CONTROLS QUALITY, UPS PRODUCTION WITH MIKRO-Products

Meer Corporation, Bergen, N.J. employs a unique 3-level automatic milling operation to handle gum arabic. A MIKRO-PULSAIRE Dust Collector serves as a receiver-filter in an air-conveying system which insures a constant high-volume flow of materials between all units in the installation, including a No. 4 MIKRO-PULVERIZER, as shown above. Results are better quality control and virtually doubled production. We'd like to show you how MIKRO-Products can do just such a job for you.

PROCESSING SYSTEMS

ECONOMICS OF WHEAT AND FLOUR:

Analyzing Wheat Crop Estimates

By DR. LEONARD W. SCHRUBEN
Agricultural Economist, Kansas State University

THIS year's winter wheat estimate is the largest made on April 1 since government reports were started 30 years ago. However, if the crop turns out to be exactly as estimated it will not be the largest on record.

On April 10 and shortly thereafter, many reports told us that nearly 1,100 million bushels of winter wheat were expected to be produced in 1961 in the U.S. These accounts were based upon an estimate of the Crop Reporting Board of the U.S. Department of Agriculture. How was this estimate made?

Government estimates made before harvest are based on an evaluation of crop prospects by a cross-section of growers and upon observations by full-time reporters.

It is virtually impossible to predict ahead of time exactly how much wheat will be harvested. After all, estimates made before harvest are only indications of probable wheat production. How can anyone tell in April whether there will be hot winds in June? Or a late freeze?

Official reports issued by the Crop Reporting Board are based upon crop conditions on the first of the month being reported. They are usually released about the 10th. Data in Figure I indicate the official estimates on winter wheat since 1920. Space is left for 1961 so one can follow development of this year's crop in case he cares to clip this table and keep it at hand.

FIGURE I

Winter Wheat, Estimates of Production, U.S. 1920-1961

Year of harvest	Winter Wheat Production (millions of bushels) Estimates issued by the Crop Reporting Board as of April 1	May 1	June 1	July 1	Aug. 1	Dec. 1
1920	...	485	504	518	533	578
1921	...	629	578	574	544	587
1922	...	585	607	569	542	586
1923	...	578	580	586	568	572
1924	...	553	509	543	589	590
1925	...	445	407	404	416	398
1926	...	549	543	568	626	627
1927	...	594	537	579	553	552
1928	...	486	512	544	579	579
1929	...	595	622	582	568	578
1930	550	525	532	558	597	604
1931	644	653	649	713	775	787
1932	458	441	411	432	442	462
1933	334	337	341	336	340	351
1934	492	461	400	394	401	405
1935	435	432	441	458	432	433
1936	493	464	482	512	519	519
1937	656	654	649	664	688	685
1938	726	754	761	715	688	687
1939	549	544	523	538	551	563
1940	426	460	489	524	556	589
1941	616	653	698	682	685	671
1942	625	647	647	675	698	703
1943	559	515	502	519	534	530
1944	602	662	714	793	786	764
1945	863	835	797	834	837	823
1946	831	743	775	857	880	874
1947	973	1,026	1,093	1,092	1,096	1,068
1948	861	835	877	952	981	990
1949	1,020	1,021	1,037	932	895	902
1950	764	690	710	721	741	751
1951	727	682	705	707	651	645
1952	947	986	1,060	1,048	1,063	1,053
1953	714	730	770	821	878	878
1954	678	707	740	758	776	791
1955	662	653	639	663	689	705
1956	716	681	670	717	722	735
1957	669	703	736	715	691	707
1958	964	1,010	1,069	1,130	1,171	1,180
1959	966	957	941	933	909	923
1960	977	992	1,019	1,090	1,117	1,117
1961	1,099	...	...	...	...	...

FIGURE II

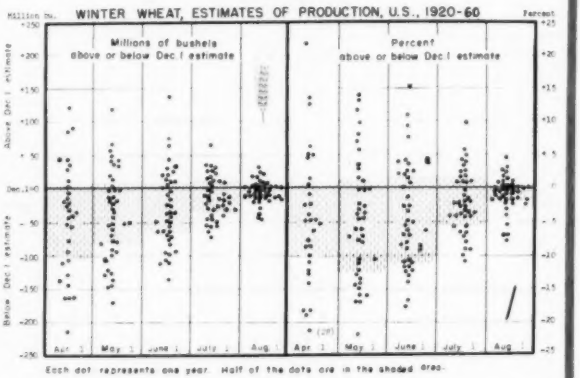

WINTER WHEAT, ESTIMATES OF PRODUCTION, U.S., 1920-60
Millions of bushels above or below Dec.1 estimate
Percent above or below Dec.1 estimate
Above Dec.1 estimate
Below Dec.1 estimate
Apr. 1
May 1
June 1
July 1
Aug. 1
Each dot represents one year. Half of the data are in the shaded area.

Figure II shows both bushel and percentage comparisons of each wheat harvest estimate, with the final estimate released in December. The shaded area includes one-half of the estimates; the center one-half. As expected, estimates improved in most years as harvest approached. As can be seen, April 1 estimates were below the final for the year (made in December) more times than they were above it. Fewer bushels were harvested in eight years and more were harvested in 22 years.

Significance This Year

No doubt Congress and the administration in Washington will take into account the prospect for this year's crop in drafting wheat legislation. New reports will be released in May, June, July and August, and a final estimate for the year in December. The larger the prospective crop the more likely will be the adoption of tighter controls.

With a large crop in prospect, millers and grain men may want to review their positions. Prices likely will bounce around for no apparent reason. It's too early to tell whether or not to contract for wheat much ahead of needs. Despite a large crop in prospect, the milling quality won't be known until it reaches maturity.

Look for heavy downward pressure on prices this year at harvest time, especially if it is a wet year, and also, if a new wheat program for 1962 isn't pretty well along toward adoption. «

G. L. Bovie Named To General Mills' Engineering Post

Girard L. Bovie has been appointed to the new position of assistant director of engineering and assistant chief engineer for General Mills, Inc.

Girard L. Bovie

An announcement of the appointment was made by Hans Schmelzer, director of engineering and chief engineer for GMI, who stated that Mr. Bovie's wide experience in design, construction and contracting of industrial engineering work will be utilized in new construction, modernization and expansion involving GMI's facilities in the U.S. and abroad.

Mr. Bovie received a degree in civil engineering from the Illinois Institute of Technology; a master's degree in business administration from the University of Chicago, and a doctorate from Loyola University's school of law.

At the same time, Mr. Schmelzer reported promotion of two engineering staff members to higher positions. Leo Riconda, formerly executive engineer, has been named as executive engineer and assistant chief engineer. D. E. Schaetzel, formerly senior staff engineer (mechanical) is now senior mechanical staff engineer and assistant chief engineer. «

District 5, AOM, Meets in Decatur

Gateway District No. 5, Association of Operative Millers, managed to work in a broad program of industry subjects and an evening of entertainment during its April meeting held at the Orlando Hotel, Decatur, Ill.

On the program were A. Appanitis, the Mill Mutuals, who showed a film, "Fighting Fires in Country Elevators"; Emil Kliebenschaedel, Buhler Corp., with a paper, "Pneumatic Handling in Fluidized Form"; Robert Wichser, Quaker Oats Co., presented a paper, with slides and exhibits, on "Adventures in Corn Milling." Royce Pence, the Pillsbury Co., spoke about the firm's recently completed bulk storage facility at its Springfield, Ill., plant.

The meeting was preceded by an evening of entertainment, courtesy of the allied tradesmen. «

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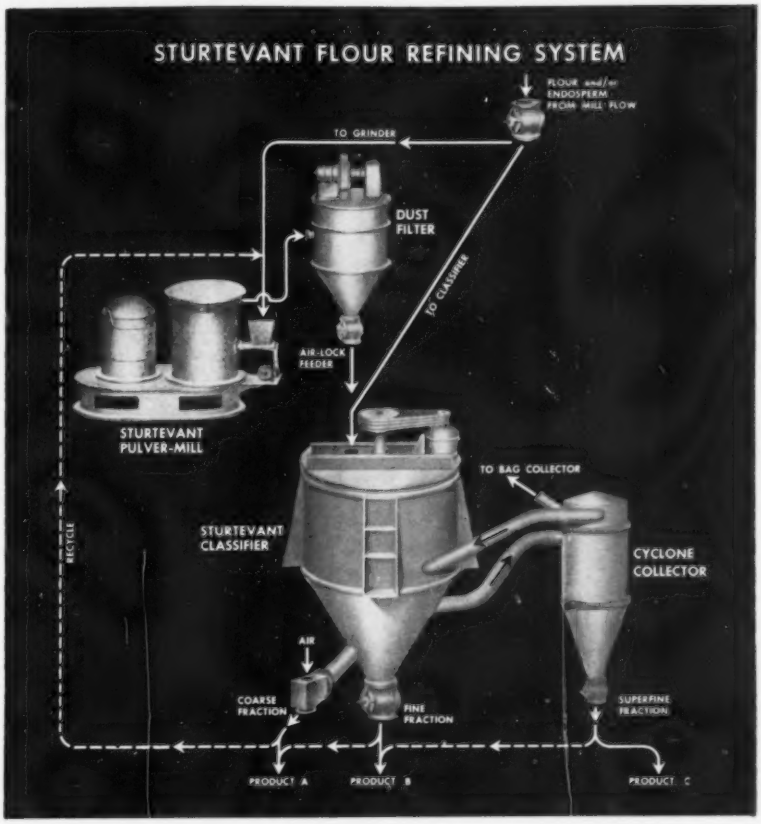

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Air Classification of Pacific North

By V. F. PFEIFER, A. C. STRINGFELLOW and E. L. GRIFFIN, JR.

Northern Regional Research Laboratory, Peoria, Ill., a laboratory of the Northern Research and Development Division, Agricultural Research Service U.S. Department of Agriculture

EVERY year the Pacific Northwest harvests more than 100 million bushels of wheat. However, over 80% of the total consists of Club and soft white wheat types which do not yield a bread flour.

Therefore, because most hard wheat from the area is too low in protein to yield good bread flour, Montana wheat is mostly used in the Pacific Northwest to mill bread flour.

Fractionation of flour by fine grinding and air classification offers a means of producing fractions significantly richer in protein than the original flours. This approach has possibilities for producing bread flour from Pacific Northwest wheats by blending high protein fractions with local wheat flours too low in protein content for good bread flours. Low protein fractions produced simultaneously should be suitable for industrial starches.

This report describes the fractionation by fine grinding and air classification of long patent flours from four popular varieties of Pacific Northwest wheat, Omar, Brevor, Burt and Rio. Results obtained from reprocessing low-protein blends separated from each of these flours (to separate fractions of the lowest possible protein contents) are also given. Fractions from the classification of both as-milled and finely ground flours reported here are now being tested in bread, cake and cookie baking at U.S. Department of Agriculture's Western Research Laboratory, Albany, Cal. Their findings will be reported later.

Results of fine grinding and one-stage air-classification studies of five varieties of Pacific Northwest wheat flours have been reported by Adair and Obermeyer (1), who noted that the fine fraction from Omar variety had a protein content below 16%. Earlier we reported the seven-stage air classification of Omar - Brevor blend commercial flour, both as-milled and after fine grinding, and the separation of starchy fractions containing as little as 1.4% protein (6).

Equipment: Long patent flours milled from each variety of wheat used in these experiments were produced in a MIAG Multomat experimental flour mill (8).

Fine grinding of the various flours was done in an Alpine Kolloplex pin mill, model 160Z. Air classification of both as-milled and finely ground flours was carried out in a Pillsbury laboratory model classifier.

Particle size distributions of flours, reground flours, blends, reground blends and the coarser fractions from classification were determined in a Sharples Micromerograph air - sedimentation apparatus (4). Particle size distributions of the three finest fractions in each classification were determined with a Coulter counter (3). Applications of the equipment to the fractionation of typical U.S. hard and soft wheat flours have been described by Pfeifer and Griffin (5).

Materials and Procedures: Commercially pure varieties of Omar white club wheat (WC), Brevor soft white winter wheat (SWW), Burt hard white winter wheat (HWW), and Rio hard red winter wheat (HRW) were obtained from the Pacific Northwest. When each variety was milled on the MIAG Multomat, long patent flours were extracted in the following percentages: Omar WC—71%; Brevor SWW—64%; Burt HWW—71%; Rio HRW—70%. Total extraction of each was about 4% higher (wheat basis).

EDITOR'S NOTE: The authors wish to point out that mention of firm names or trade products does not imply endorsement or recommendation by the U.S. Department of Agriculture over other firms or similar products not mentioned.

TABLE I
Fractionation of Omar Flour
(All figures on 14% H_2O basis)

Kind of flour and fraction No.	Protein, %	Ash, %	Diastatic activity, mg. maltose/ 10 g.	MMD, microns	% of Flour
As-milled flour	6.0	0.36	105	30	...
Fraction 1	15.8	0.51	225	7	7.1
Fraction 2	11.7	0.47	200	9	6.8
Fraction 3	9.2	0.43	185	10	6.1
Fraction 4	4.0	0.32	120	17	23.1
Fraction 5	3.2	0.32	110	17	11.0
Fraction 6	3.1	0.34	100	18	14.0
Fraction 7	4.0	0.36	90	20	10.7
Fraction 8	6.4	0.35	85	56	21.2
Reground—3 passes:	6.1	0.37	135	17	...
Fraction 1	17.0	0.53	255	7	10.4
Fraction 2	11.2	0.44	195	8	8.8
Fraction 3	8.4	0.42	185	10	9.0
Fraction 4	3.3	0.33	120	17	24.8
Fraction 5	2.5	0.32	110	18	12.3
Fraction 6	2.2	0.31	95	19	16.0
Fraction 7	2.2	0.31	95	21	12.0
Fraction 8	4.6	0.34	110	25	6.7

TABLE II
Fractionation of Brevor Flour
(All figures on 14% H_2O basis)

Kind of flour and fraction No.	Protein, %	Ash, %	Diastatic activity, mg. maltose/ 10 g.	MMD, microns	% of Flour
As-milled flour:	6.5	0.35	80	24	...
Fraction 1	22.0	0.48	190	7	5.5
Fraction 2	19.7	0.44	165	8	5.8
Fraction 3	16.7	0.43	160	10	5.4
Fraction 4	5.6	0.34	90	16	24.9
Fraction 5	3.1	0.31	80	19	11.7
Fraction 6	2.5	0.29	75	20	17.5
Fraction 7	2.4	0.30	60	23	16.2
Fraction 8	5.4	0.38	70	26	13.0
Reground—3 passes:	6.6	0.35	100	17	...
Fraction 1	25.1	0.54	235	7	9.2
Fraction 2	18.6	0.46	170	8	7.4
Fraction 3	11.9	0.40	165	10	7.6
Fraction 4	3.8	0.32	110	17	23.5
Fraction 5	2.0	0.30	80	19	12.3
Fraction 6	1.3	0.28	75	20	17.2
Fraction 7	1.4	0.28	75	21	17.1
Fraction 8	2.3	0.33	80	28	5.7

West Soft, Hard Wheat Flours

A Milling Technology Feature

The authors gratefully acknowledge help in obtaining wheats to G. O. Kohler, Western Regional Research Laboratory; Mark Barmore, Western Wheat Quality Laboratory; Walter Broom, General Mills, Inc.; to L. H. Burbridge in carrying out the work described, and to D. E. Uhl for analyzing the many samples.

Each long patent flour was classified both as-milled and after fine grinding by three consecutive passes through the pin mill at 14,000 rpm.

Each flour was separated into eight consecutively coarser fractions by collecting a fine fraction, readjusting the classifier for a coarser cut, passing through the coarse fraction, and repeating the procedure until seven fine fractions and one coarse residue fraction were obtained. Low-protein fractions (Fractions 4-7 inclusive), from as-milled and finely ground flours from each wheat, were reprocessed by blending and grinding at 18,000 rpm. with one pass through the pin mill. Each blend was then reclassified into six consecutively coarser fractions.

Separations by these repeated procedures are near the maximum possible with these flour types and with these techniques. Each fraction was weighed and analyzed for moisture, protein, ash, diastatic activity and particle size distribution. Moisture in the samples was determined as the weight loss when 10-g. samples were heated at 120°C. for 1 hr. in a forced circulation oven. Protein (Nx5.7), ash, and maltose values were determined by Cereal Laboratory Methods 67.1, 9.1, and 24.1, respectively (2). Particle size is reported in terms of mass median diameter (MMD)—the diameter at which 50% of the weight of the sample is undersize.

Results and Discussion: Amounts of the various flour fractions and their analyses are listed in Tables I to V. Yields and protein content of the various fractions obtained in the initial classification of the original and finely ground flours are shown graphically in Fig. I to IV. The figures also show curves for the protein content of the combined fines fraction (cumulative fines) collected during each fractionation.

The greatest range in protein content of fractions (1.3% to 25.1%) from the initial classification of as-milled or finely ground flour occurred in the Brevor SWW wheat flour. Fractions containing 20% or more protein were obtained from all flours, except the Omar WC flour, where the maximum protein content of any fraction was 17.0% even with fine grinding of the flour before classification.

Starchy fractions containing less than 3% protein resulted from the initial classifications of reground flours from both Omar and Brevor. About 45% of the reground Burt HWW flour from the initial classification had a protein content below 4%, but no fraction from the initial classification of the reground Rio HRW flour contained less thn 4.7% protein.

When low-protein fractions (Fractions 4-7 inclusive) from each variety were combined and reprocessed by regrinding and reclassification, a minimum protein content of 1.0% was reached with the Brevor SWW wheat (Table V). The lowest protein fraction obtained after reprocessing low-protein materials from Omar WC wheat contained 1.7% protein; from Burt HWW wheat, 2.4%, and from Rio HRW, 3.5%.

Each of these fractions, even that from the Rio HRW, is sufficiently low in protein content to have potential use as starch in some industrial applications. Rio HRW flour from the Pacific Northwest is "softer" than HRW flour from the Midwest; the lowest protein fraction from midwestern HRW flour described in a previous report (7) contained 4.9% protein.

During reprocessing of low-protein blends from each of the four wheats, fractions containing above 17% pro-

TABLE III

Fractionation of Burt Flour

(All figures on 14% H_2O basis)

Kind of flour and fraction No.	Protein, %	Ash, %	Diastatic activity, mg. maltose/ 10 g.	MMD, microns	% of Flour
As-milled flour:	7.0	0.40	280	55	...
Fraction 1	19.7	0.69	555	7	3.8
Fraction 2	15.6	0.69	565	8	3.3
Fraction 3	11.9	0.59	565	11	2.7
Fraction 4	5.1	0.42	485	20	13.2
Fraction 5	4.3	0.39	415	21	6.9
Fraction 6	3.9	0.37	330	23	11.8
Fraction 7	5.1	0.37	255	24	11.1
Fraction 8	7.0	0.36	145	63	47.2
Reground—3 passes:	7.1	0.40	370	22	...
Fraction 1	22.0	0.73	560	7	7.4
Fraction 2	15.3	0.56	560	9	5.4
Fraction 3	10.7	0.54	565	11	6.3
Fraction 4	4.7	0.36	450	19	18.2
Fraction 5	3.6	0.34	365	20	10.5
Fraction 6	3.4	0.33	270	21	16.2
Fraction 7	3.7	0.32	215	24	17.9
Fraction 8	6.2	0.34	205	34	18.1

TABLE IV

Fractionation of Rio Flour

(All figures on 14% H_2O basis)

Kind of flour and fraction No.	Protein, %	Ash, %	Diastatic activity, mg. maltose/ 10 g.	MMD, microns	% of Flour
As-milled flour:	9.1	0.43	220	39	...
Fraction 1	21.2	0.70	420	7	4.8
Fraction 2	18.4	0.65	395	9	4.0
Fraction 3	15.4	0.56	410	11	3.5
Fraction 4	7.6	0.43	340	16	14.0
Fraction 5	5.9	0.41	320	18	8.5
Fraction 6	5.9	0.41	290	21	13.1
Fraction 7	7.3	0.41	240	26	15.5
Fraction 8	9.7	0.37	140	54	36.6
Reground—3 passes:	9.1	0.45	290	19	...
Fraction 1	24.0	0.78	405	7	9.5
Fraction 2	19.5	0.66	385	8	6.5
Fraction 3	14.3	0.58	435	11	7.5
Fraction 4	5.3	0.38	310	16	23.6
Fraction 5	5.1	0.35	285	18	14.0
Fraction 6	4.7	0.34	235	21	17.7
Fraction 7	5.5	0.34	195	24	6.3
Fraction 8	8.7	0.36	170	38	14.9

tein were separated from all, except the Omar variety, in which the highest protein content in any fraction was only 12.8%.

Variations in ash and diastatic activity for the various fractions are similar to those previously reported for typical U.S. hard and soft wheat flours (5). In each classification, ash constituents concentrated in the finer fractions, and the ash content tended to follow variations in the protein content. Diastatic activity increased somewhat during grinding, principally because of increase of surface. Fine fractions showed high diastatic activity as much as double that of the flour classified. Starchy or low-protein fractions from each flour were always improved over the initial flour in ash content and in diastatic activity as well as in protein content, and should be better suited for industrial uses than the original flours.

Our work indicates that Brevor SWW wheat flour is exceptionally responsive to fractionation by fine grinding and air classification. Brevor fractions ranged in protein from as low as 1% to as high as 25%. The 1% protein fraction is the lowest from any variety tested thus far at the Northern Laboratory.

Omar WC wheat flour gave no fraction containing over 17% protein, but more than half the flour was recover-

FIGURE I
Fractionation of Omar Flour Containing 6.0% Protein

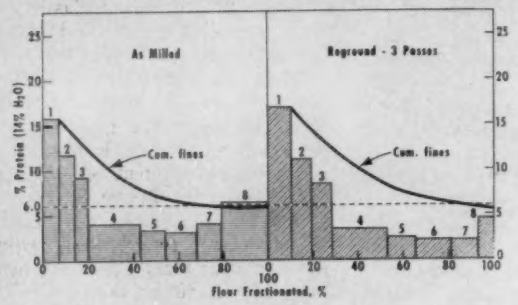

FIGURE II
Fractionation of Brevor Flour Containing 6.5% Protein

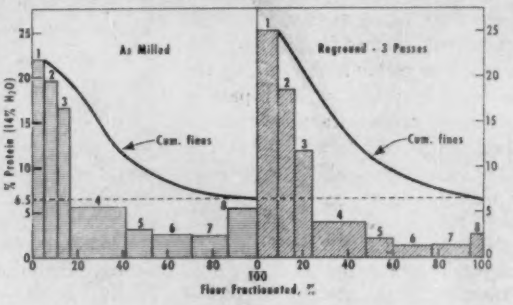

FIGURE III
Fractionation of Burt Flour Containing 7.0% Protein

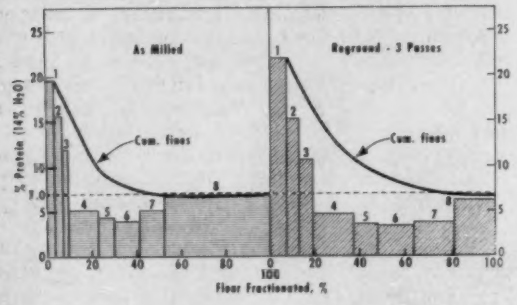

FIGURE IV
Fractionation of Rio Flour Containing 9.1% Protein

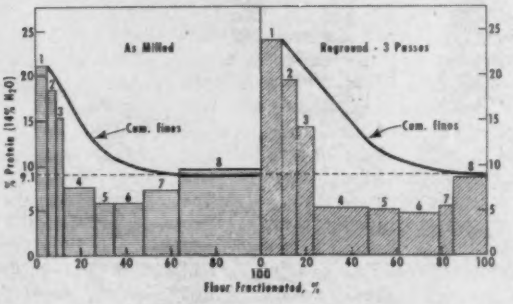

TABLE V
Reprocessing Blended Low-Protein Fractions from PNW Wheat Flours
(All figures on 14% moisture basis)

Kind of flour and fraction No.	Protein, %	Ash, %	Diastatic activity, mg. maltose/ 10 g.	MMD, microns	% of original flour*
Omar WC flour, blend:	3.1	0.34	115	19	62.0
Same, after regrinding	...	...	130	17	...
Fraction 1	12.8	0.65	240	8	4.4
Fraction 2	4.7	0.41	180	13	7.5
Fraction 3	2.2	0.36	115	18	17.2
Fraction 4	1.9	0.34	115	19	9.0
Fraction 5	1.7	0.32	105	20	11.9
Fraction 6	1.7	0.32	95	22	12.0
Brevor SW flour, blend:	2.8	0.31	80	19	70.0
Same, after regrinding	...	...	95	18	...
Fraction 1	20.1	0.60	220	8	3.8
Fraction 2	6.0	0.42	150	13	6.1
Fraction 3	1.8	0.33	100	18	15.9
Fraction 4	1.4	0.29	85	19	7.2
Fraction 5	1.0	0.29	80	20	16.6
Fraction 6	1.0	0.28	70	21	20.4
Burt HWW flour, blend:	4.0	0.36	310	21	53.0
Same, after regrinding	...	...	340	19	...
Fraction 1	17.4	0.76	550	9	2.4
Fraction 2	6.8	0.51	550	14	4.9
Fraction 3	2.9	0.37	385	18	13.0
Fraction 4	2.7	0.36	320	20	6.9
Fraction 5	2.5	0.32	275	21	10.5
Fraction 6	2.4	0.34	195	24	15.3
Rio HRW flour, blend:	5.8	0.38	260	20	56.0
Same, after regrinding	...	...	285	18	...
Fraction 1	21.0	0.83	380	8	3.5
Fraction 2	9.1	0.46	380	12	6.1
Fraction 3	4.4	0.34	270	18	14.9
Fraction 4	3.8	0.31	240	20	7.8
Fraction 5	3.5	0.31	225	22	10.8
Fraction 6	4.3	0.34	195	23	12.9

*Yield based on original flour fractionated.

able at a protein content below 2%. This fraction should be suitable for many industrial uses as a replacement for starch.

Burt HWW wheat flour can be fractionated to produce both high- and low-protein fractions. Approximately 10% of the finely ground flour was recovered at 20% protein content, and after reprocessing the low-protein fractions from the initial classification, 45% of the original flour was recovered containing below 3% protein.

Rio HRW wheat flour is excellent if high-protein fractions are desired. About 20% of the finely ground flour is recoverable at a protein content of 20%. The lowest protein fraction was 3.5%, which came from reprocessing the low-protein fractions separated in the initial classification. This protein level may be slightly high for some potential industrial uses.

Whether the fractionation of these PNW flours is economically feasible at present requires an evaluation of the fractions obtainable from each and a comparison of the increased value with the extra processing cost involved. «

» »

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Elimination of Moisture in Bulk Loading Claimed by Engineers Using Pneumatics

PREVENTION is better than cure. The old adage is particularly true of condensation, a major bugaboo for millers who use bulk cars, hoppers and trucks.

Technologists have succeeded in minimizing the problem over the years. But their aim is to eliminate it altogether. Can it be eliminated? Officials of the Buhler Corp.'s materials handling division say it is possible. A new conveying system, for which patents are pending, has been developed and actual operation at two mills—Tennant & Hoyt Co., Lake City, Minn., and Eckhart Milling Co., Chicago—is proving successful.

The Buhler men say their system incorporates an air cooling system with a high pressure conveying system. The material is conveyed with air at a temperature lower than the dew point of the walls of the cars and trucks, thereby eliminating condensation. Thus moisture does not form on the interior walls of the vehicles. Moreover, the cold air removes very little moisture from the flour being loaded—the average is about .04%—and the product is cooled considerably at the same time.

Theory Explained

What is the theory of anti-condensation conveying? It involves the basic relationships of psychrometrics. Simply stated, by using air cold enough, condensation can be entirely eliminated.

The critical factor that determines whether moisture will condense upon a cold surface is the temperature of the gases in which the vapor is present. As the temperature of the gases and vapor increases, the capacity of the gases to hold moisture is increased. For example, the weight of moisture that can exist in a pound of air at 0° F. is .0075 lb., while at 200° F. the amount is 2.295 lb. of water per pound of air, or 330 times as much moisture as at 0° F.

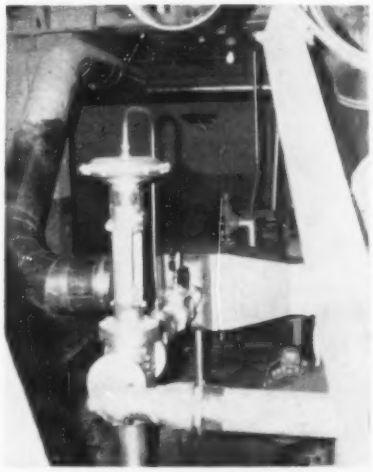
In the standard pneumatic conveying system, used to load cars and trucks, the temperature of the conveying air which impinges upon the flour in the airlock is usually at least 200°. As the air and flour travel together through the conveying tube, the moisture of the flour is evaporated and the air and flour are cooled. The air quickly reaches a state of saturation due to rapid absorption and cooling.

If this state occurs before the flour enters the bulk car or truck, the air will continue to cool and become super-saturated. The normal temperature of the air from a standard system will be in the vicinity of 120° F. At this temperature, a pound of saturated air will deposit .082 lb. of moisture on a wall of 40° temperature. During an hour of normal loading, 180 lb. of water will be deposited in the car or truck.

Heat Exchanger

The new Buhler system incorporates a heat exchanger to cool the conveying air to a temperature lower than that of the inside surface temperature of the vehicles. The effect of this is two-fold: (1) the air has to be heated by the flour before it can absorb moisture; if moisture is evaporated from the flour, the air is cooled in relation to the amount of moisture evaporated. (2) The moisture that the anti-condensation system can pick up will amount to only about 12 lb. per operating hour. As the air is colder than the walls of the bulk cars or trucks, condensation cannot be deposited on the walls.

The practical application of this theory leads the Buhler people to claim that by using air cold enough, they can eliminate condensation completely from loading operations of bulk cars and trucks. «



PICTURED is the heat exchanger installed at the plant of the Eckhart Milling Co., Chicago.

A Milling Technology Feature

The Long, Long Trail of Organized Research To Control Insect Infestations

A Story of the Pioneers Who Have Dedicated Their Careers To Insuring Better Grain and Milled Cereal Products

By RICHARD T. COTTON

ORGANIZED research on the subject of insect pests in stored grain and milled cereal products in the U.S. began in about 1893. Dr. F. H. Chittenden was responsible for much of the early work conducted by the federal government, and in 1894 he published his account, "The More Important Insects Injurious to Stored Grain."

During the next two decades Dr. Chittenden wrote a series of reports on life histories of stored grain insects—these reports have served as a foundation for our knowledge of these pests.

I began work with the U.S. Department of Agriculture in 1919 under supervision of Dr. E. A. Back. Just two years prior to my appearance on the scene with USDA Dr. Back had organized the division of stored product insects to carry on the work started by Dr. Chittenden.

For my part, following two years of work in the South on insect pests of southern-grown corn, the call came to report to Washington as first assistant to Dr. Back. For 13 years I was in Washington, closely associated with him, conducting research on fumigants and their uses. I became acquainted with the different species of insects which infest stored products, studying their life histories, their habits, resistance to heat and cold, insecticidal sprays and fumigants, and assisting in administration of field stations established in various parts of the country.

"HEADS TOGETHER" sessions such as this one were largely responsible for the programs of insect control which evolved many times during Dr. Cotton's long career. In this particular photo are, left to right: Prof. D. A. Wilbur, Kansas State University; Dr. Cotton; Del Gates, extension entomologist for Kansas State; (next man unidentified), and Jesse Smith, Shellabarger Mills, now deceased.

Living in Washington was highly interesting and so were some of the assignments. We fumigated the White House, inaugurated a method of fumigating old books for the Library of Congress, fumigated Walter Reed Hospital, and many other places of historic interest.

Perez Simmons joined the division about the same time as I did, and association with him was notable. His friendship and counsel through the years have been of high value. Before leaving for Fresno, Cal., to take charge of work with the insect pests of dried fruit, he wrote an exhaustive account of the Angoumois grain moth.

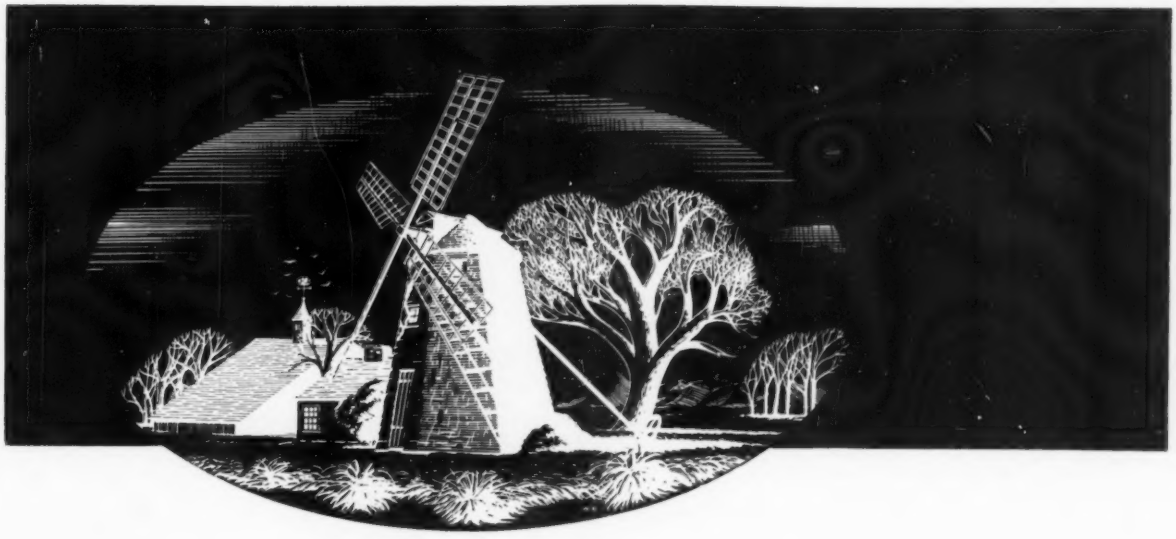
During the period in Washington I did experimental work with Dr. R. C. Roark, H. D. Young and others in the bureau of chemistry, aimed at finding a substitute for carbon disulfide. This work resulted in the discovery of many new fumigants, including ethylene oxide, ethylene dichloride, ethylene dibromide, ethyl and methyl formate, among others.

Many months were devoted to testing these fumigants in the laboratory, in farm bins, rail cars in the Baltimore yards and in grain elevators at key centers in the U.S. and Canada.

Many bulletins and scientific articles on fumigants and fumigation techniques, relating to specific insect pests and their control, plus many other subjects, were written and published during this period in cooperation with Dr. Back and numerous associates.

In 1934 the old division of stored product insects was disbanded and I was designated to set up a headquarters for working on insect pests of stored grain and flour mills. Naturally, such a headquarters had to be located in close contact with the grain and milling industries, so Manhattan, Kansas, was chosen.

Several reasons influenced this selection: Manhattan's geographical location was desirable; it was close to



Keep Faith With Nature — Guard Her Goodness

Old-fashioned millers had their ways...

To the old-fashioned miller came many grains—wheat, corn, oats, rye—to be ground into flour. With the wind's help he did his work. Now he and his ways are gone. Consumers today demand *white* flour, *white* bread and rolls. Millers and bakers, naturally, give people what they want.

Modern milling practice loses some of the nutritional benefits present in nature's grain. Therefore, it makes good sense that valuable vitamins and minerals are put back into foods through *enrichment*. This means that pure vitamin B_1 (thiamine), vitamin B_2 (riboflavin), niacin (another "B" vitamin), iron, and, sometimes, calcium and vitamin D are added to family white flour, white bread and rolls, corn meal and grits, macaroni products, white rice, and farina.

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Kansas City; Kansas State University's milling and baking facilities were close, along with one of the real pioneers in controlling flour mill insects, Dr. George A. Dean.

Milling Entomology

Dr. Dean became interested in control of flour mill insects early in the century, and his publication, "Mill and Stored Grain Insects," was published in 1913 as Bulletin No. 189 of the Kansas Agricultural Experiment Station. For many years he acted as consultant for the Southwest Millers League. Dr. Dean started teaching a course in milling entomology in 1917. He continued teaching this course through 1948. Prof. D. A. Wilbur took over the course in 1949 and has since been doing outstanding work in training students and graduates in stored grain and mill insect control.

Gilbert Schenk, a former associate, maintained a laboratory at Manhattan prior to 1934 and cooperated with Dr. Dean on stored grain and mill insect problems. After his resignation in 1929 to enter the commercial field, the work was continued by George B. Wagner, now with Pillsbury, who worked out of Kansas City until 1934, when he moved to Manhattan and became my associate, along with T. F. Winburn, H. D. Young and Dr.

Dr. Cotton's article, written especially for this issue of THE MILLER, covers more than 40 years of study, investigation and eradication of insect pests in stored grain and milled cereal products. From his extensive background he has pin-pointed many of the people, projects and progressive steps pioneered and initiated in the name of sanitation. The work covered an area stretching from the wheat fields of Kansas to the conference halls of London. In the early days of his work, Dr. Cotton even assisted in fumigating the White House.

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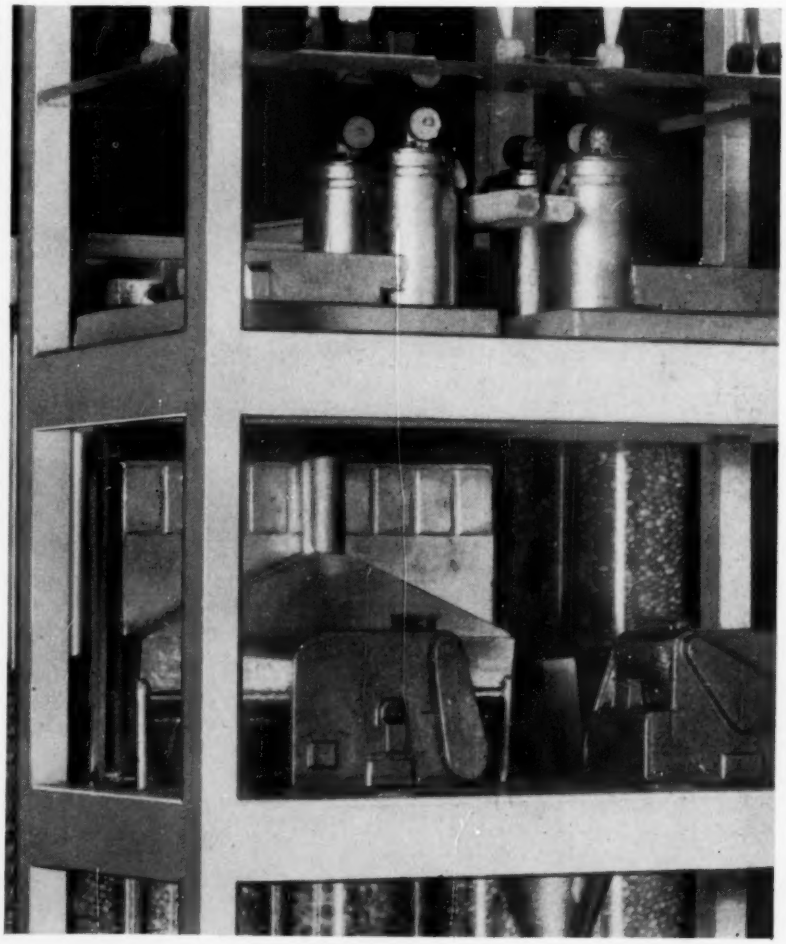

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ENGINEERS AND MANUFACTURERS OF FLOUR MILLING AND GRAIN PROCESSING MACHINERY

N. E. Good. The original purpose for establishing a laboratory in this region was interest of Southwest millers in insect control due to their experiences with the insurance of export flour against "weevil" infestation, and the requirement for mill inspection and certification before they could obtain the benefit of an insect infestation rider on insurance policies. John Cain, Midland Flour Mills, led a committee to Washington in 1927 to enlist aid of USDA in solving insect infestation problems of the millers, and he was successful in having money assigned to this research project.

One of the earliest undertakings was preparation, in cooperation with Dr. Dean and Mr. Wagner, of USDA. Circular 390, "Flour Mill Insects and Their Control." Advice and encouragement of Dr. Dean and his staff through early years of the laboratory was most helpful.

During the following seven years great strides were made in development of practical methods of mill insect control. The services of Mr. Wagner during these years were invaluable due to his energy, personality, his knowledge of milling procedures, contacts with flour mill and grain elevator personnel, and his previous experience in conducting research on grain and mill insect problems. With cooperation of the milling industry, intensive studies were made of the insect population of flour mills over a wide area of the Southwest, with objectives being determination of the effect of seasonal temperature changes, and of the various control programs in operation on insect abundance.

Gas Concentrations

Studies were made of gas concentrations in many mills to determine the effect of dosage, building construction, temperature, wind velocity, type of sealing and many other factors on efficiency of the operation. Analytical work was done by our chemist, H. D. Young. M. Niehorster and his former associate, Waldo Locke, Fumigation Engineering Corp., Minneapolis, cooperated in experimental work in many instances while fumigating mills, bakeries and macaroni plants with HCN.

Many mill executives put up with considerable inconvenience by allowing our men to determine the efficiency of local fumigants, insecticidal sprays and periodic programs of sanitation, fumigation and spraying on mill insect populations.

Of those who were most gracious in permitting experimental work in their mills, special mention should be

made of John Cain, Midland Flour Mills; Elmer Reed, Kansas Milling Co.; Jesse Smith, Shellabarger Mills; Boyce Forbes, Forbes Bros. mill; John Landes, Topeka Flour Mills; Harry Graham, Wamego Milling Co.; O. F. Kelley, Boonville Milling Co.; Mr. Jackman, Bowersock Milling Co.; Oscar Cook, Standard Milling Co., and Charles McGinness, N. Sauer Milling Co.

Officials of General Mills and Pillsbury were particularly cordial in offering access to their mills for the purpose of conducting research. In fact, management of all milling companies approached was most generous and helpful.

Contact with and cooperation from many flour milling companies throughout the country was obtained for us by Herman Steen of the Millers National Federation. He was often very helpful in obtaining contributions of flour for experimental work.

Contact with the corn millers was generously supplied by Harry Hunter, the American Corn Millers Federation. Over the years advice and cooperation from the milling department at Kansas State, too, was of inestimable value. Considerable experimental work was conducted with help from Dr. C. O. Swanson of Kansas State; Dr. E. G. Bayfield, later head of the baking department at Florida State University; Royce Pence, Kansas State; Dr. John A. Shellenberger, now head of the Department of Flour and Feed Milling Industries, and Dr. Max Milner, formerly of Kansas State and now with the United Nations.

The operative millers as a group were very cooperative in teaching us mill operation, flow of raw materials, processing into flour, and details of packing and loading. To mention everyone by name who assisted with this training would make a long list. However, particular mention should be made of Carl Greer, Elmer Huffman, Floyd Talmadge, W. T. Harding, Howard Zerger, Ernest Schroeder, Phil Lawson and Henry Vilm.

Significant Research Projects

The importance of treating finished flour to ensure freedom from insect life when packed was early recognized. In an article published in The Northwestern Miller in June of 1937 it was shown that rebolt reels could not always be depended upon, but that sifters clothed with 10xx bolting cloth, properly placed and cared for, were effective in removing all stages of the flour beetle from sifted flour. Later, it was found that the mechanical bulk flour Entoleter, used alone or in conjunction with reels or sifters, provided added protection against infestation in finished flour.

During development of the Entoleter, many experiments were conducted with experimental models provided by the manufacturers.

Research work on resistance of flour bags and packages to insect penetration engaged the attention of the laboratory force for many years. With assistance from many of the leading bag companies, including Bemis Bro. Bag Co., Chase Bag Co., Fulton Bag Co., International Paper Co. and St. Regis Paper Co., all types of textile and paper bags were tested, and their weak and strong points determined.

During World War II active cooperation with the research and development laboratory of the U.S. Army Quartermaster Corps at Chicago, resulted in the testing of a large variety of materials to determine resistance to insect penetration.

Vacuum Fumigating

Study conducted by laboratory members in cooperation with the Quaker Oats Co. at that firm's Cedar Rapids, Iowa, plant resulted in development of dosages and methods for fumigating flour and feed under vacuum. Cooperators included the Carbide & Carbon Chemicals Corp. and Guardite Corp., manufacturers of vacuum fumigation equipment.

During the past 30 years few new fumigants have been developed. However, many new formulations have been made by combining two or more chemicals to obtain synergistic effects, lower flammability hazards or to improve generally the performance of well known materials. A thorough study of methods of application, effect of grain condition, temperature, wind velocity, type of grain, type of structure and individual resistance of specific insect pests to fumigants, provided a fund of invaluable information.

The cooperation of such firms as the American Cyanamid Co., Dow Chemical Co., the Carbide and Carbon Chemical Corp. and others in supplying chemicals, equipment and technical advice has been responsible for much of the progress made.

The fumigation of grain has developed from the early practice of occasional treatment enabling the grain dealer to meet grain standards requirements to use of fumigants for preventing serious contamination of grain stocks. It is estimated that presently in the U.S. nearly 3 billion bushels of grain require fumigation annually, entailing use of several million gallons of fumigants.

Infestation in Transit

The vexing problem of infestation in transit led to study of the condition of flour leaving the mill or warehouse, condition of the rail cars supplied for transportation, effectiveness of sanitation, spraying and fumigation on the insect population of rail cars, effect of car construction, speed of infestation of flour products carried in infested cars and many other facets of the problem. Many problems remain to be solved. However, it has been pretty well demonstrated why flour products become infested in transit and what is needed to prevent it.

With passage of the Agricultural Adjustment Act of 1938, providing an ever normal granary program, interest rose regarding the insect hazard to grain in farm-type storages in all parts of the country. Mr. Wagner and I made extensive surveys throughout the grain-growing areas and estimated the relative hazard of storing grain in the various regions.

In cooperation with state organizations of the North Central States and with other federal agencies, plans were made to study the problems of long time storage of wheat and corn in farm-type storages in the North Central States. With funds and facilities supplied by the Commodity Credit Corp., an unparalleled opportunity was offered to make a complete study of the insect problems of grain storage and the most efficient methods of preventing loss.

Laboratory and field studies were carried on in Illinois, Indiana, Iowa, Missouri, Kansas, Nebraska, Minnesota and North and South Dakota.

T. F. Winburn was assigned to coordinate and lead research activity in the field, but in 1941 he resigned to enter military service. Mr. Winburn continued his interest in this field of work and after the termination of his military service became manager of the Industrial Fumigants Co., Kansas City.

Mr. Wagner took over the field work from Mr. Winburn, but resigned a short time later to join the Millers National Federation in setting up insect control programs in 1941. He later entered military service, and in 1945 joined the staff of Pillsbury as director of economic biology. He has been a leader in the fight for better

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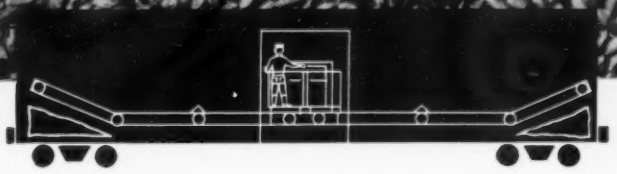

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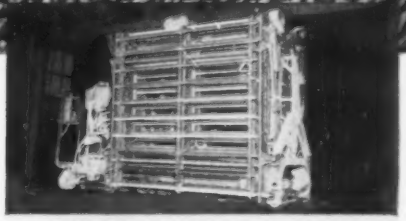
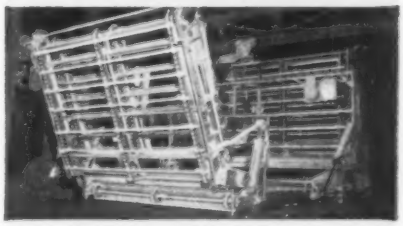


Machine enters car door on overhead monorail. Flexiveyor sections in retracted position.



First flexiveyor wing (on each side) goes down.

First and second flexiveyor wings are down; third being lowered.

insect control in the milling field for many years.

H. H. Walkden was assigned to take over the field work on grain storage problems in 1941 and did an outstanding job at experimental storage sites in Hutchinson, Kansas; Jamestown, N.D., and throughout the commercial corn growing area. A number of new men were pressed into the work over a wide area, including R. B. Schwitzgebel, Gailen White, Leonard Redlinger, Al Apt, Billie Wilson, J. M. Magner, Norman Dennis and others. Cooperators in various states in the work included George Decker and Harold Gunderson in Iowa, and M. D. Farrar in Illinois. The aid and assistance of agricultural engineers, such as Henry J. Barre, William Hukil, Leo Holman, W. R. Swanson, E. R. Gross, F. C. Fenton, B. M. Stahl and C. K. Shedd was invaluable

A detailed report of entomological phases of the research work on grain storage carried out under this project was included in a series of quarterly reports appearing in mimeograph form from 1941 to 1946. These reports, available in many agricultural libraries of the North Central States, contain a wealth of information regarding insect pests of stored corn and wheat prevalent in this region, their seasonal abundance, ecology, experimental work with dusts, insecticidal sprays, fumigants, storage management practices, etc. They have served as a basis for numerous publications. During this period grain fumigation in farm storage passed from the primitive method of sprinkling the chemicals over the surface of bins with a watering can to the modern methods used today.

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Protectants Studied

The study of inert and insecticidal dusts as protectants for stored grain and seed gained impetus with receipt of a supply of silica dust from the British government during World War II. A systematic study of many types of dust yielded valuable and interesting information on use of grain and seed protectants. Inert mineral dusts, although effective in protecting seed from insect attack under certain conditions, are not deemed desirable in the U.S. for mixing with grain intended for human food.

However, wheat dust impregnated with pyrethrins synergized with piperonyl butoxide can be safely used for this purpose. Grain protectants have certain advantages over fumigants in that they prevent infestations from becoming established, do not affect viability, are easily applied without hazard to the operator, and one treatment is usually sufficient for one season. Synergized pyrethrum spray protectants are equally effective and are perhaps more popular than dusts.

Little attention was paid to the effect of contamination of grain by insects until passage and enforcement of the food laws of 1906 and 1938 which banned from channels of interstate commerce food which "consists in whole or in part of any filthy, putrid, or decomposed substance," and provided that they must not be "prepared, packed or held under insanitary conditions whereby they may become contaminated with filth."

As a result of increased activity by the U.S. Food and Drug Administration in bakeries and flour mills, greater interest was focused on insect and rodent contamination of market grain. Millers found that wheat with more than 0.5% of infested kernels was undesirable for milling. For domestic flour production, some mills will not use wheats for their mill mixes which

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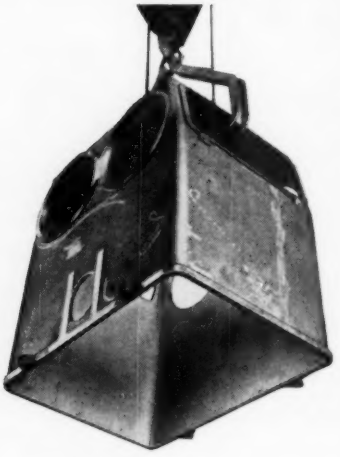

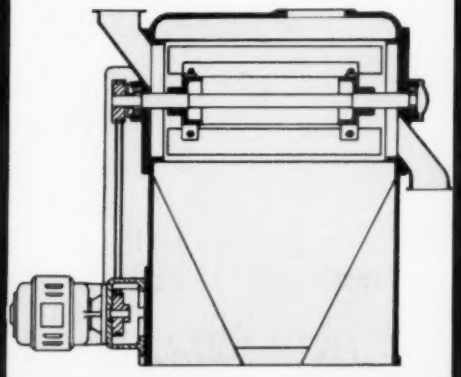

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Dr. Richard Cotton

George B. Wagner

"When We Were Young"

contain more then eight internal insect forms per 100 gm.

Methods of rapidly determining the extent of internal insect infestation in stored grain were stimulated by development of the stain test by J. C. Frankenfeld. The X-ray method later developed by Max Milner and his associates has proved to be the most accurate and rapid method so far devised. During the period of 1940 to 1950 I was ably assisted by Mr. Frankenfeld in operation of the laboratory at Manhattan. He was responsible for execution of many programs conducted during this decade and was personally responsible for much field and laboratory experimental work. His resignation to enter the commercial field was a material loss.

Due to heavy infestation of Kansas wheat in the 1948-49 season drastic action was necessary. The Kansas Wheat Quality Council was formed late in 1949, largely through the efforts of Jesse Smith and his organization, the Associated Millers of Kansas Wheat. The council consisted of representatives from state and federal governments, the milling, grain and baking industries, railroads, American Farm Bureau Federation, the Farmers' Union, farmers' cooperatives, the Kansas Wheat Improvement Assn., agricultural chemical manufacturers, and others. A program of insect control worked out by the Manhattan laboratory was adopted and an intensive campaign planned to bring it to the attention of every wheat grower and handler in the state. As a result of the campaign, a striking reduction in insect infestation of grain was made in subsequent years.

In 1947 I headed an American delegation to London to attend the world conference of member nations of the Food and Agriculture Organization of the United Nations on world problem of losses resulting from damage to cereal products by insects, rodents and fungi. This afforded an opportunity to meet scientists from all parts of the world actively working on these problems, and to visit the English research laboratories devoted to stored product insect problems.

Division Reorganized

In 1951 the old stored products division of USDA was reorganized under the leadership of Randall Latta. I was assigned to supervise a section composed of laboratories working with insect pests of stored dried fruit, beans and peas, tobacco, rice, southern-grown corn and peanuts, plus duties with stored grain and flour mills.

H. H. Walkden then was placed in charge of the Manhattan laboratory. Later, I was transferred to Washington, followed by my retirement in 1957.

Adaptation of the results of research to needs of the miller and grain dealer is fully as important as accumulation of such information. An organization in the milling industry which fulfills this role is the sanitation committee of the Association of Operative Millers. The sanitation committee, appointed by Charles Veeck of International Milling Co. (now with Smico Sales Co.) while he was AOM president has since functioned efficiently under the inspired leadership of its chairman, Mr. Wagner.

As originally formed, the committee comprised Mr. Wagner of Pillsbury; Paul McSpadden, Commander Larabee Milling Co.; Harold Goossens, Russell-Miller Milling Co. (now Russell Miller-King Midas Mills); Howard Stedman of Rodney Milling Co.; Waldo Locke of General Mills, Inc.; William Schoenherr of Lauhoff Grain Co.; Eric Kitley of International; Harold Gray of the Canadian Entomological Service, and myself.

Mr. Wagner has done an outstanding job managing the committee's affairs, arranging programs and transcribing its proceedings.

The original members of the committee still serve, with the exception of Mr. Stedman, Mr. Kitley and this writer. Additional members subsequently appointed were Dr. Lyman Henderson of USDA; Houston Boyd of Rodney Milling Co.; D. A. Wilbur, Kansas State, and Glen Fisher, Fisher Flouring Mills Co., Seattle.

By keeping in touch with and assessing the value of new developments and techniques in the field of sanitation and pest control, this committee is doing a valuable service to the grain and milling industries. It is satisfying to know that the results of research are being utilized. «

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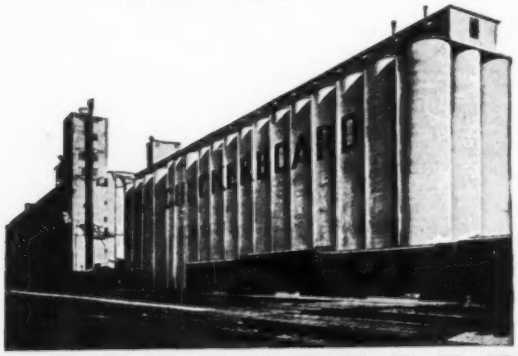
ELEVATOR CAPACITY
4,800,000 BUSHELS



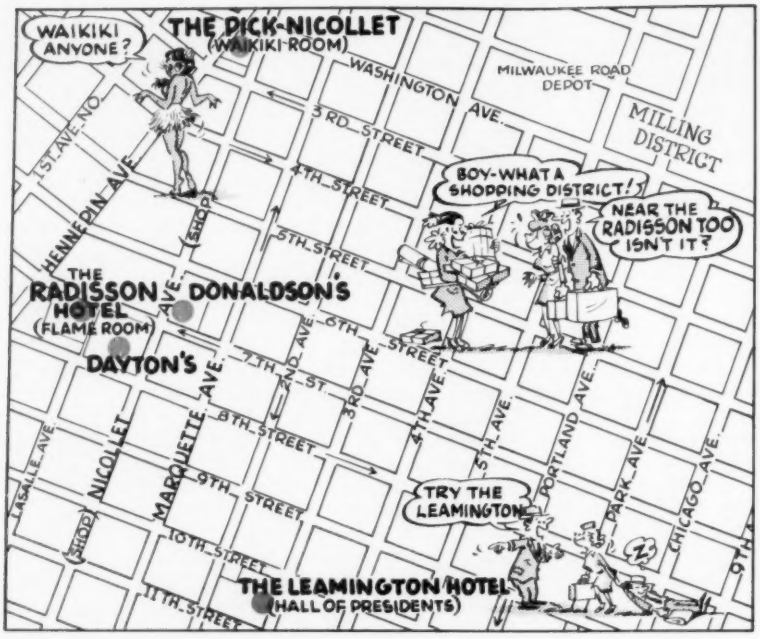
MILLING WHEAT

SELECTED HARD WINTERS
FROM CHOICE TERRITORIES

CHECKERBOARD GRAIN CO.

BOARD OF TRADE BLDG. • KANSAS CITY, MO. • PHONE HA 1-1114

ST. LOUIS • CHICAGO • MINNEAPOLIS



Minneapolis Rolls Out the Red Carpet To Entertain the AOM Ladies . . . While Their Husbands Work

SOME FIRMS frown upon wives accompanying their men to conventions, conferences and meetings. They are considered to be distracting influences, taking the husbands away from the technical sessions they should attend.

On the other hand, there are firms which like to see the ladies go along because they exert a leavening influence on the high jinks associated with conventions in the olden days. Today, conventioneering is serious business.

Certainly, there is no danger that husbandly millers will be distracted from their duties at the AOM technical conference—it is never called a convention—in Minneapolis.

The operative millers will be free to attend the technical sessions, examine the exhibits and question the allied men, whose wives will also attend the ladies' functions, in order to learn all they can about new ways of doing things in the business of making flour.

This year an energetic committee, headed by Luverne Wagner and Aileen Ellis as co-chairmen, and Dolores Swarbreck as treasurer, with a bevy of hostesses and committee members drawn from the wives of District 4 members will see that the visiting ladies are entertained royally.

Both milling and allied firms assist in the project. The opening Monday (May 22) lunch will be hosted by Wallace & Tiernan, Inc., in the Radisson Hotel's Flame Room. In the evening, the ladies will join their husbands at the Allied Trades Party which promises to be an exciting affair. On Tuesday, the Minnesota milling firms will be the hosts in the Hall of Presidents of the Leamington Hotel. The allied trades in association with AOM will provide favors and gifts. And there will be surprises, Mrs. Wagner and Mrs. Ellis say.

On Wednesday morning, Sterwin Chemicals, Inc., will entertain the ladies to breakfast in the Waikiki Room of the headquarters hotel, the Pick-Nicollet. And in the evening, there will be the annual banquet, another affair at which the ladies join their husbands. Each lady will be given an orchid, in accordance with long standing custom, by the Screw Conveyor Co.

The map at the top of the page will be of assistance in helping the ladies locate the two outside hotels where functions will be held, the main shopping center—and in that area will be found the beauty parlors.

There is no registration fee payable by those ladies attending the functions. But their husbands must be members of AOM and registered at the conference. «

Mary K. Moore Retires as Director Of AIB Publicity

Mary Kinnavey Moore, who was instrumental in developing the general news and consumer service public information programs of the American Institute of Baking during her 17 years with AIB, has retired from her position as director of publicity.

Mrs. Wynn Mason Taylor, of AIB's publicity staff, becomes publicity director as a result of Mrs. Moore's retirement. A graduate of the Medill School of Journalism at Northwestern University, Mrs. Taylor was a general news reporter before joining the AIB staff in 1960.

Originally from Davenport, Iowa, Mrs. Moore came to AIB in 1944, following extensive experience in newspaper reporting and feature writing, in publicity work for a number of organizations, and script writing for radio. She was co-author of several radio serial dramas. She holds B.A. and M.A. degrees from the University of Iowa.

Recognition Given

In recognition of her contribution to the welfare of the people of Holland, Mrs. Moore was named a Knight of the Order of Orange Nassau, by order of Queen Juliana.

Among her professional memberships is that in Theta Sigma Phi, women's national professional fraternity for women in journalism, of which Mrs. Moore is past president. She has also served on local and national committees for such organizations as American Women in Radio and Television.

Mother of four, Mrs. Moore and her daughter, Nancy, make their home in Northfield, a Chicago suburb. A second daughter, Patricia Moore, is society editor of the Chicago Daily News. Her sons are Willfred G. Moore, Jr., of Wilmette, Ill., and Eric Moore, of San Diego, Cal. She has six grandchildren. Mr. Moore died of a heart attack in 1939. «

Mary K. Moore

Wynn Taylor

so you're FUSSY? meet our test bakers

Toughest trial ever given any Russell Miller-King Midas flour is in our own test bakery!

Here's how the fussiness of our test bakers helps you. We don't stop with seeking out the finest wheats, blending them carefully and milling them to the exact particle size. It's not until finished bakings come from the test oven that Russell Miller-King Midas feels it has produced a perfect bakery flour . . . a flour worthy of our name. **The search for perfection never ends.** The testing begins before we buy a single bushel of wheat. It continues even after we have elevators full of what we consider the best wheat available. It's an investment in satisfying bakers who rely on the Russell Miller-King Midas name when they buy flour. **Fussiness pays off for you.** Now you can see why a test-bake must be demanding, tough, impartial. With so much depending on the result our bakers get from this final test—they must be fussy. And we love 'em for it! Our responsibility to bakers includes a high level of technical help, and a constant, dependable service program for bakers. Formula analysis, production help—all of these important services are available from Russell Miller-King Midas. And when you need it, mixed shipments and other ordering conveniences are readily available to help you. **All this—and it costs you no more.** It's good to know that Russell Miller-King Midas delivers this high standard of quality in flour. And it's equally good to know it costs you nothing extra. Talk to your Russell Miller-King Midas salesman soon. Let him tell you how our fussiness can help you bake better.

RUSSELL MILLER-KING MIDAS MILLS

Milling Division of F. H. Peavey & Company • *Pioneer specialists in milling fine flours*

MINNEAPOLIS 15, MINNESOTA. Millers of Occident, American Beauty, Producer, King Midas, Powerful and other superb Hard Spring, Hard Winter and Soft Wheat Bakery Flours.

A MILL RE-VISITED

Pneumatics Bring New Look to Old Plant Making Air, Making Space, Making Flour

By George E. Swarbreck

GOOD HOUSEKEEPING PRACTICES are a "must" in the flour milling business. Even in the murkiest of cities, outside and inside the plant must be houseproud clean if it is to meet the exacting standards of the plant manager himself, the sanitation engineer and satisfy the beagles from the Food and Drug Administration.

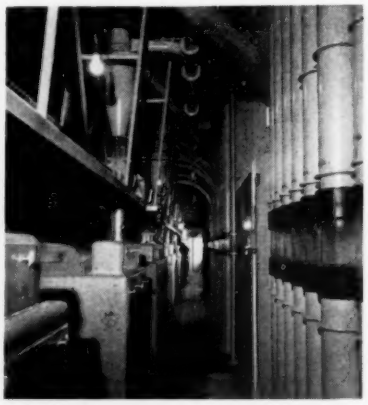
A hard job it was in the old days to keep a plant sparkling. Particularly an old plant a half century or more old. Today it is easier. The milling engineers have come to the aid of the millers and the systems they install bring cleanliness as an adjunct to more efficient flour making. What's more, they open up space where there was no space before.

Up-to-date pneumatic handling systems, for instance, are not the prerogative of a new mill or of the mills of the large multiple unit firms. They have their place in the mills of the smaller, independent operators.

A look at the newly-modernized plant of Tennant & Hoyt Co., Lake City, Minn., brings this out clearly. There are other such mills up and down the country. And there will be more. But the transformation at Lake City is eyebrow raising for those who saw the "old look" and who may now see the "new look." And it is reputedly the largest **single** pneumatic unit in the U.S.

Described by Charles R. Hoyt, president, as a major step in the firm's continuing modernization program, the pneumatic system was installed by the Buhler Corp. One of the problems posed to Buhler was: "We can't stop normal operations. We must continue to fulfill our orders."

Thus it was that the system was installed "on the run," as Buhler's Fritz Schiess describes it, without any interruption of operations. Erectors, preparing their materials during the week, made the changeovers during the weekends when the plant was down on regular schedule. As a result, not a pound of production was lost and capacity was maintained. And the job was done carefully and efficiently.



PNEUMATIC LINES with sight glasses are installed along the walls, avoiding the windows to give every advantage of natural light in the plant.

In addition to the pneumatic system, new purifiers and sifters have been installed, and there's more to come in this part of the modernization program.

The pneumatic systems for mill stocks with a total capacity of approximately 5,500 cwt., basis 24 hours of operation, consist of 59 suction lines, with capacities of 600 to 5,000 lb. per hour, the on-the-spot reporter is told. And the average length of the lines is 80 ft. The necessary conveying air is produced by three high pressure fans.

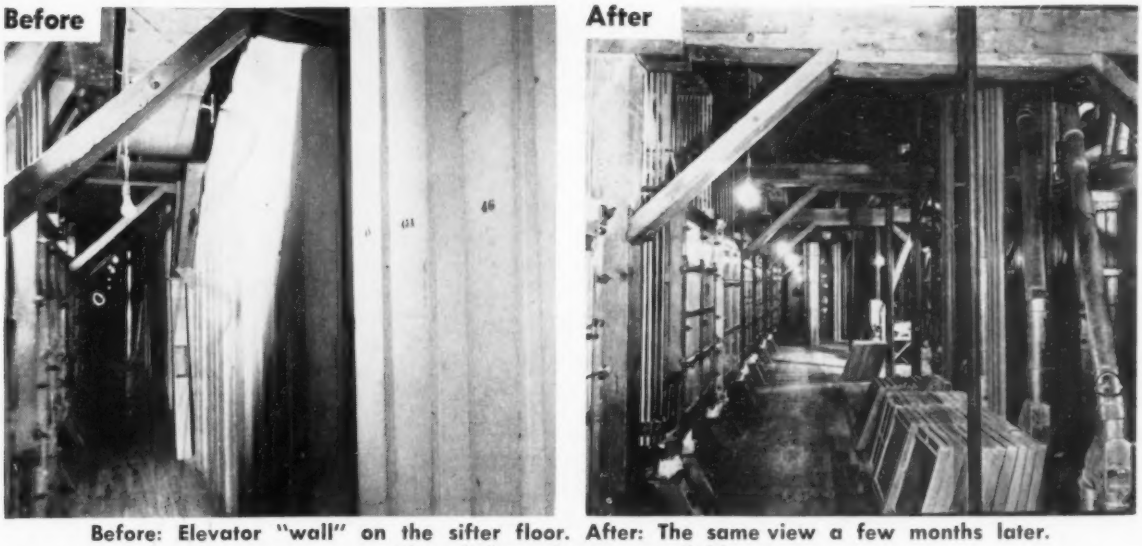
Additionally, several individual pressure lifts convey wheat in the cleaning house, as well as finished products. Some operate with capacities of up to 36,000 lb. per hour. The dust collecting system for the pneumatics consists of two Buhler suction filters.

The visitor is instantly struck by the spaciousness and airiness of the plant. "Highly successful" is the way Mr. Hoyt describes it. He is of the fourth generation in the business but the pride showing in his eyes does not hide the keen business mind he has. And he undertook the program because it was "good business." Vice president and general sales manager Elmer O. Peterson nods in agreement at this.

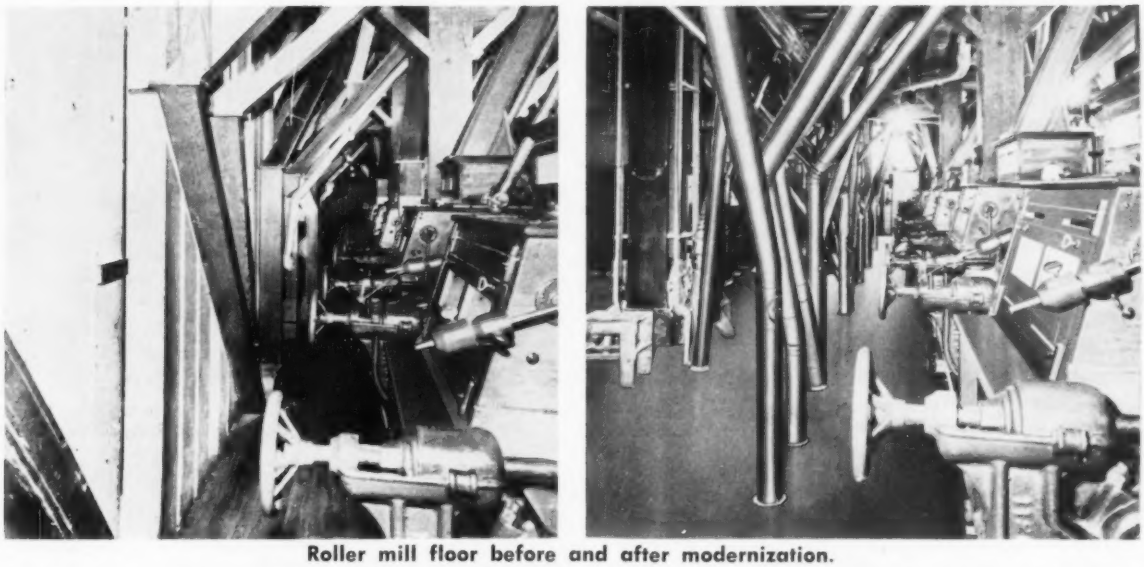
There is certainly pride in the eyes of veteran superintendent Fred Haase, as he shows the visitor over his "baby." His pride is almost parental. His recollections of the mill go back over several decades during which time the 60 year old firm has kept up with the many improvements available to millers. But this, he says, is the most far-reaching. And Howard J. Balow, chemist, grins appreciatively at the compliments that flow. →

HERE ARE the elevator heads before remodeling. At the right is a view of the floor taken from the same position after remodeling.

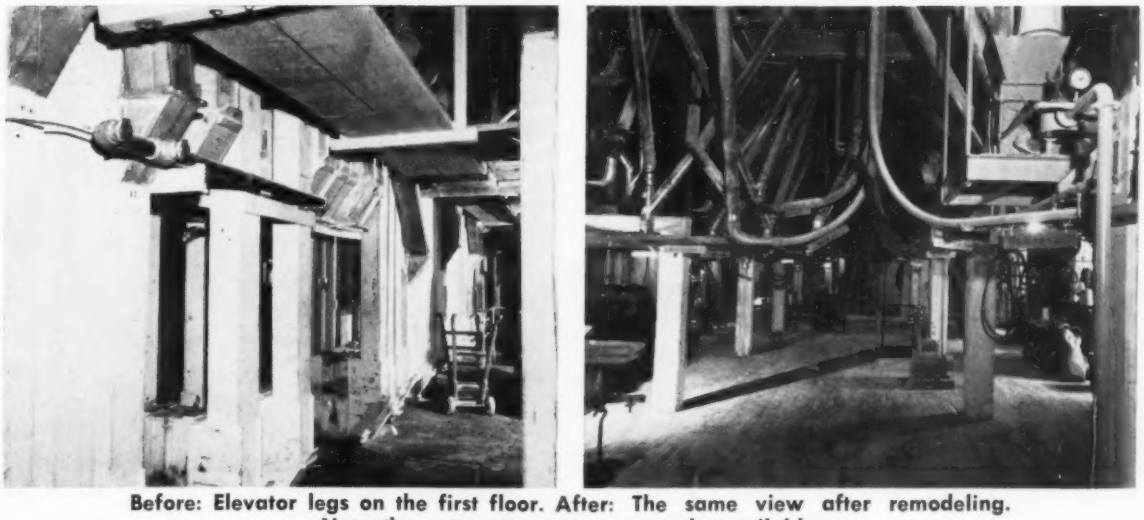
Interested millers will have an opportunity of visiting Lake City to see the Tennant & Hoyt plant at the conclusion of the Association of Operative Millers annual technical conference and trade show May 25. Transportation will leave the Hotel Pick-Nicollet at 12:30 p.m. The milling firm and the Buhler Corp. will be hosts for lunch.



Before: Elevator "wall" on the sifter floor. After: The same view a few months later. More light and space available.



Roller mill floor before and after modernization.



Before: Elevator legs on the first floor. After: The same view after remodeling. Note the extra storage space made available.

1 Samples by the thousands of selected grains are analyzed.

2 Grain quality must meet exacting standards.

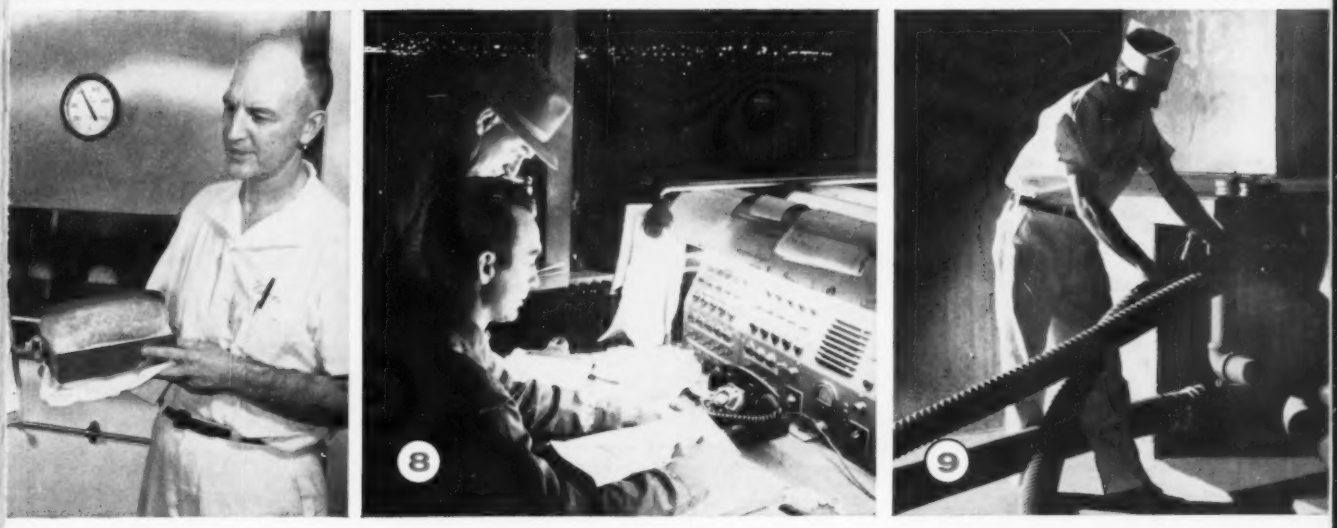
3 A battery of cleaning units screens and scours the grain.

4 Grain is thoroughly washed and pre-conditioned for milling.

Expert supervision of every milling operation helps make Commander Larabee

"Better to Buy from"

Step by step, from the field to your bakery bin, Commander Larabee sees to it that you get top-performing flour of dependable quality and prescription milled to your exact specifications.



5 Flour-purifying stages are checked by experienced millers.

6 Flour is lab-tested for desired specifications.

7 Baking qualities are analyzed in control lab.

8 Traffic team expedites shipments.

9 Flour is delivered mill-fresh to bakery bins.

Long before Commander buys a single bushel of wheat, thousands of field samples are tested in their Central Control Laboratory. It's during this search for premium wheats that Commander Larabee buyers sift and sort over 22,000 laboratory samples—buying only the choice varieties that will meet their milling standards. After reaching the Commander mills, the wheat cleaning treatment pre-conditions every grain.

A complex system of units picks, screens, washes, and vacuums away every unwanted particle. It's then that the milling process begins. Precision machines combine with a skilled team of flour milling craftsmen to bring you the finest baking flours available . . . flours that are formulated to your most exacting requirements. Then, after countless tests in the Commander baking ovens, the finished flour product receives the test laboratory stamp of approval.

Commander Larabee service is an equal match to their flour-making excellence. By letter, phone, TWX, teletype and personal supervision, Commander's traffic team keeps in touch with every shipment as it moves to its destination by bag, barge, rail, and truck.

If you're looking for top-quality, prescription-milled flour, give your Commander Larabee salesman a call. You'll find not only the finest flour . . . but the fastest, friendliest service available anywhere.

Archer-Daniels-Midland

COMMANDER LARABEE DIVISION

MINNEAPOLIS • KANSAS CITY

WHERE THEY ARE MEETING

May

May 8-9—Minnesota Bakers Assn., annual convention; Hotel Radisson, Minneapolis, Minn.; sec., James M. Long, 623 14th Ave. S.E., Minneapolis.

May 9—New England Bakers Assn., spring meeting; Sheraton-Plaza Hotel, Boston, Mass.; sec., William E. Bowman, 945 Great Plain Ave., Room 9, Needham 92, Mass.

May 14-15—Virginia Bakers Conference, spring conference; Hotel Roanoke, Roanoke, Va.; executive dir., Harold K. Wilder, 5 South 12th St., Richmond 19, Va.

May 20-21—Iowa Bakers Assn., annual convention; Des Moines Hotel, Des Moines, Iowa; sec., Earl F. Weaver, 6416 Colby Ave., Des Moines 11, Iowa.

May 20-22—Rocky Mountain Bakers Assn., annual convention; Continental Denver Motor Hotel, Denver, Colo.; sec., Fred Linsenmaier, Box 871, Denver 1.

May 21-24—The Biscuit and Cracker Manufacturers' Assn. and Biscuit Bakers Institute, Inc., joint annual meeting; the Mayflower Hotel, Washington, D.C.; sec., Thomas F. Deutschle, 20 North Wacker Drive, Chicago 6, Ill.

May 22-25—Association of Operative Millers, annual technical conference and trade show, Hotel Pick-Nicollet, Minneapolis, Minn.; sec., Donald S. Eber, 639 Board of Trade Bldg., Kansas City, Mo.

May 26-28—National Association of Flour Distributors, annual convention; Hilton Hotel, Pittsburgh, Pa.; sec., Philip W. Orth, Jr., Ph. Orth Co., 304 E. Florida St., Milwaukee 4, Wis.

June

June 4-6—New York State Association of Manufacturing Retail Bakers, annual convention; Westchester Town House, Yonkers, N.Y.; sec., Frank E. Englert, 135 Primrose Drive, New Hyde Park, N.Y.

June 4-6—The National Council of the Baking Industry, annual conference; Royal York Hotel, Toronto, Ont., Canada; managing director, R. H. Ackert, 4 N. Sherbourne St., Suite 105, Toronto 5, Ont., Canada.

June 10-12—Bakers Association of the Carolinas, annual convention; Ocean Forest Hotel, Myrtle Beach, South Carolina; sec., Mary E. Stanley, P.O. Box 175, Rockingham, S.C.

June 23-24—District 10, Association of Operative Millers; San Luis Obispo, Cal.; sec., Gene Thomas, California Mill Equipment Co., San Mateo, Cal.

June 25-27—New Hampshire-Vermont Bakers Assn., annual meeting; Wentworth Hall, Jackson, N.H.; sec., Calvin Gaebel, 214 Harvard St., Boston 34, Mass.

July

July 13-17—Bakery Equipment Manufacturers Assn., annual meeting; Bedford Springs Hotel, Bedford Springs, Pa.; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

July 16-19—West Virginia Bakers Assn., 1961 convention; the Greenbrier Hotel, White Sulphur Springs, W.Va.; sec., Mrs. Edward R. Johnson, 611 Pennsylvania Ave., Charleston 2, W.Va.

September

Sept. 8-9—District 7, Association of Operative Millers; Lake Murray Lodge, Ardmore, Okla.; sec., Henry H. Stark, Ross Machine & Mill Supply Co., Oklahoma City.

Sept. 15-16—District 2, Association of Operative Millers; Aladdin Hotel, Kansas City, Mo.; sec., George Smutny, Entoleter, Inc., Kansas City.

Sept. 17-18—Wisconsin Bakers Assn., annual convention; Plankinton House, Milwaukee, Wis.; sec., Fred H. Laufenburg, 6173 Plankinton Bldg., 161 W. Wisconsin Ave., Milwaukee 3.

Sept. 17-19—Southern Bakers Assn., annual production conference; Dinkler

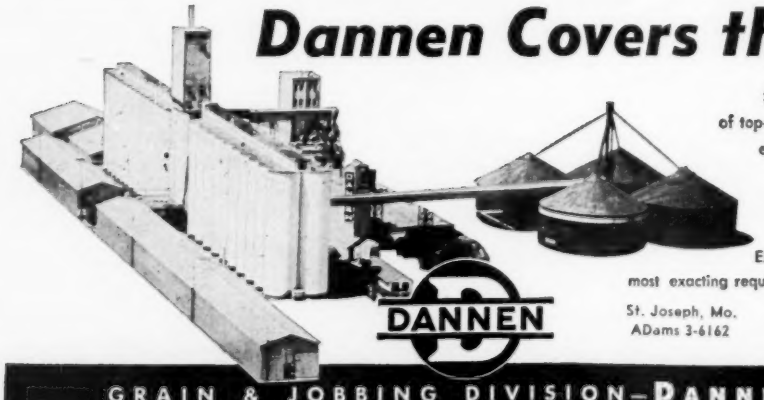
HARD AND SOFT WHEAT FLOURS

J. F. IMBS MILLING CO.

ST. LOUIS 10, MISSOURI

MILLING CAPACITY—4,200 CWTS. DAILY

Dannen Covers the Midlands



Strategically located, Dannen furnishes all types of top-quality milling wheat from points throughout the entire winter wheat area. Over 25 million bushels of storage space in terminal elevators and twenty-six country stations is your assurance of dependable Dannen service.

Experienced wheat buyers, skilled in meeting the most exacting requirements, are anxious to serve you. Call today.

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DANNEN

GRAIN & JOBBING DIVISION—DANNEN MILLS, INC.

NOW—The Latest in Milling . . .

Our ALL-PNEUMATIC MILL

"Golden Loaf"
and
HOYT'S BEST
FLOURS

. . . are milled in our completely modernized Pneumatic Mill on the tested and tried flow that has made these flours front-ranking since 1901.

BULK OR SACK LOADING
Daily Capacity - 5,500 Cwts.

TENNANT & HOYT COMPANY

LAKE CITY, MINNESOTA

Independently Owned and Operated for Four Generations

For Mills, We Recommend . . .
TALISMANIC
BELT DRESSINGS
Specialized for Your Industry
WRITE FOR GENEROUS SAMPLES
JOHN C. CHAMBERS CO.
1827 N. LeClaire Ave. Chicago 39, Ill.

PAPER SACKS
FOR MILLERS
The Chatfield & Woods Sack Co.
CINCINNATI, O.

I-H
QUALITY MILLED FLOURS
Ismert-Hincke Milling Co.
Kansas City, Mo.

WOLCOTT & LINCOLN, Inc.
GRAIN MERCHANTS
Operating:
Chicago Great Western Elevator
Kansas City
Wolcott & Lincoln Elevator
Wellington, Kansas
Main Office: KANSAS CITY, MO.
Board of Trade Building

CALENDAR FOR 1961-62

MAY

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Plaza Hotel, Atlanta, Ga.; sec., Benson L. Skelton, Henry Grady Bldg., 26 Cain St., N.W., Atlanta 3, Ga.

Sept. 23-25—Southwest Bakers Assn., annual convention; Hilton Inn., El Paso, Texas; sec., Ralph Kilgore, P.O. Box 127, Albuquerque, N.M.

Sept. 23-26—New Jersey Bakers Board of Trade, anniversary convention and exhibition; Essex House Hotel, Newark, N.J.; sec., Michael Herzog, 48 Cleremont Ave., New Brunswick, N.J.

Sept. 24-26—Kentucky Master Bakers Assn., annual convention; Sheraton Gibson Hotel, Cincinnati, Ohio; sec., Al Wohlleb, 743 Loretto St., Louisville 11.

Sept. 29-30—District 9, Association of Operative Millers; Davenport Hotel, Spokane, Wash.; sec., Richard Schmidt, Centennial Mills, Inc., Spokane.

October

Oct. 7-12—1961 Baking Industry Exposition; Convention Hall, Atlantic City, N.J.; sec.-treas., Harold Fiedler, 20 N. Wacker Drive, Chicago 6, Ill.

Oct. 13-14—District 6, Association of Operative Millers; Lowell, Mich.; sec., Oscar J. Nelson, King Milling Co., Lowell, Mich.

Oct. 20-21—District 3, Association of Operative Millers; Danville, Ill.; sec., Hollis Maun, Jr., M.M.C. Sales Corp., Dover, Ohio.

Oct. 21-22—Nebraska Bakers Assn., annual convention; Sheraton Fontenelle Hotel, Omaha, Neb.; sec., L. F. O'Konski, Jr., 1806 Chicago St., Omaha.

Oct. 27-28—District 11, Association of Operative Millers; Barringer Hotel, Charlotte, N.C.; sec., James N. Campbell, Sterwin Chemicals Inc., Charlotte, N.C.

November

Nov. 13-14—Washingtun Association of Wheat Growers, annual convention; Walla Walla, Washington; sec., Geo. W. Johnson, Ritzville, Wash.

Nov. 13-14—New England Bakers Assn., fall convention; Sheraton-Plaza Hotel, Boston, Mass.; sec., William E. Bowman, 945 Great Plain Ave., Room 9, Needham 92, Mass.

Nov. 17-18—District 12, Association of Operative Millers; Newhouse Hotel, Salt Lake City, Utah; sec., Joseph J. Keiser, Salt Lake City Flour Mills, Salt Lake City.

December

Dec. 9—District 2, Association of Operative Millers; Aladdin Hotel, Kansas City, Mo.; sec., George Smutny, Entoleter, Inc., Kansas City.

Get longer life and better service!

only ROSS gives you
Turn-Tuff Rolls

Best Grade Solid Chilled Iron
Manufactured by E. R. & F. Turner, World's Largest Roll Maker
Unconditionally Guaranteed

Exclusive with ROSS, these world-renowned rolls are solid-cast and deep-chilled under strict metallurgical control. Turner's exceptionally high standards have been praised by roll users for over sixty years.

Association of Operative Millers, May 22-25
—Minneapolis—

In Attendance:
A. R. Roote of E. R. & F. Turner
Ipswich, England
Henry H. Stark of Ross Machine
Oklahoma City

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Roller Mills, Turn-Tuff Rolls, Corrugating
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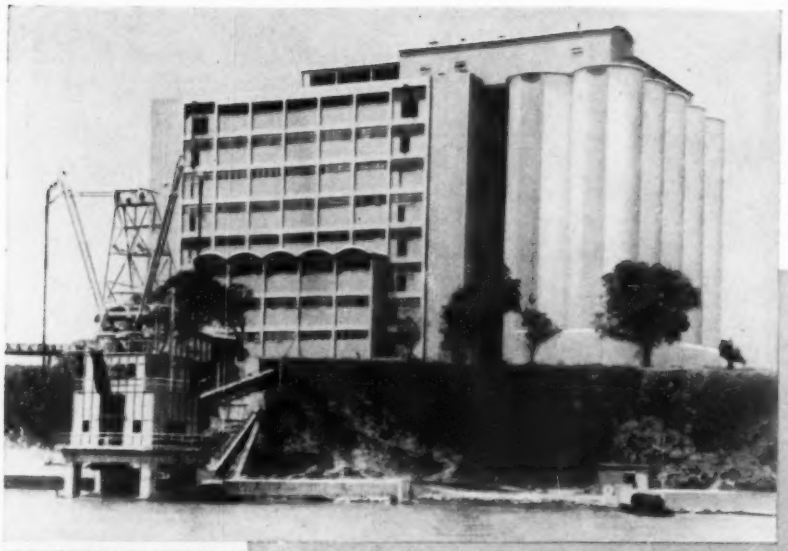

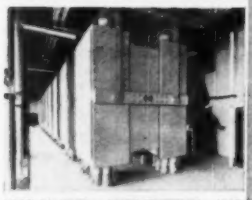

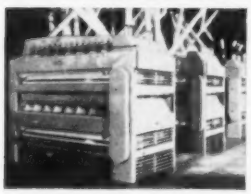

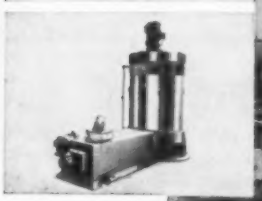

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A Milling Technology Feature

Precision Graders:

Application and Operation In the Wheat Cleaning Flow

By M. C. CECKA

Because of advances in milling technology, grain cleaning has taken on added importance and the more appropriate title, 'Conditioning.' Improved products and a better yield from the miller's wheat are the end results. Mr. Cecka is with Simon-Carter Co. His paper on the firm's Precision Grader was presented in Minneapolis before the April meeting of District 4, Association of Operative Millers.

MILLING technology is making excellent progress in changing the traditional systems and procedures of flour manufacture. Along with improvements in mill flows, the old fashioned smut room has also assumed a new look. Grain cleaning, which for many years was considered a necessary evil, and a source of loss of yield to the miller, has been promoted to the status of grain conditioning. Today's mill mixes, which call for many varieties of wheat, present problems in cleaning and conditioning which did not exist 20 years ago, or at least were given little attention.

M. C. Cecka

Wheat goes through many hands these days before it reaches the flour mill. The country elevator operator buying grain from the farmer rough-cleans it to bring dockage down to market tolerance. When the wheat reaches the public terminal elevator, it receives further cleaning. Because commercial elevator operators are working in the interests of their employers, they try to remove offal which has market value, such as oats, buckwheat and other crop grains which can be sold profitably to the feed mill. By the time the wheat gets to the flour miller the dockage has been so picked over that the offal is extremely close to the size of the wheat.

Yesterday's cleaning house, consisting of a receiving separator, milling separator, two or three disc separators, a duo-aspirator or two, scourers and washers, is no longer able to provide the complete utilization of millable wheat without letting some of the nearly inseparable offal get into the mill stream. Either yield must suffer, or contamination will get by.

Salvage of cross broken wheat and weed seeds of the same size has been simplified. In modernized grain conditioning layouts the disc grader, or "Cockle machine," as it is sometimes called, lifts the cross broken grain, extremely short small wheat, buckwheat, cockle, etc. This is sent to a smaller pocket disc "recockler" which lifts out only the smallest weed seeds, mustard and non-millable wheat particles.

Tailings and the tail end liftings of this disc recockler are sent to an Entoleter-aspirator which scours off the dark colored weed hulls, and dislodges some of the imbedded dirt in the exposed end of the cross broken wheat berry.

Recovering Grain

The Entoleter aspiration lifts out the hulls and dirt, producing a salvaged grain product which can be sent to the third (or preferably fourth) break rolls, by-passing the tempering bins. Recovering this grain improves the yield, but sends the lower quality wheat and hulled weed seeds far enough down the break system so as not to affect the high grade flour streams, where it could hurt the color, ash and baking quality.

With that much of the wheat cleaning loss corrected, attention has been focused on the stubby and pin oats and lengthwise split wheat which the disc oat separators can lift with the large wheat.

Since it would take quite a lot of equipment to remove these oats from all of the disc oat-separator liftings (usually about 95% of the wheat stream) it is simpler to concentrate the large wheat and oats into a smaller fraction which will simplify salvage. This can be accomplished by changing the discs in the present disc oat-separator to smaller pockets which will tail the long-kerneled wheat with the oats. The liftings of these smaller pockets will be the short wheat, with the cockle and small weed seeds, which will be spouted to the disc grader for recleaning as discussed previously.

This makes the former disc oat-separator a "Splitter," resulting in the tailings and some of the tail end liftings being sent to a smaller, new oat-tailings disc separator with large enough pockets to lift large wheat out with the oats. Along with the large plump wheat will be stubby and pin oats which are the same length as the largest wheat.

Long-kerneled wheat is usually quite plump (and if it is shriveled will have very little prime middlings anyway) so that separation of the thinner oats is generally possible with a slotted screen perforation. The usual flat screen separator cannot make this separation efficiently, because of the extremely small difference in thickness between the wheat and the thin oats.

Problems With Durum

Durum millers have a problem, additional to the thin oats, of removing shriveled durum berries which contain few choice middlings, and as a result make poor semolina. Precision thickness sizing here is also necessary because of the "hairline" differences in thickness of good and bad durum wheats.

The breakfast food millers have been precision sizing their cereal grains for plumpness and removal of undesirables for years, and consider this type of separation necessary as any other part of their cleaning process.

This is where the Precision Grader enters the picture. The cylindrical screens used in the Precision Grader

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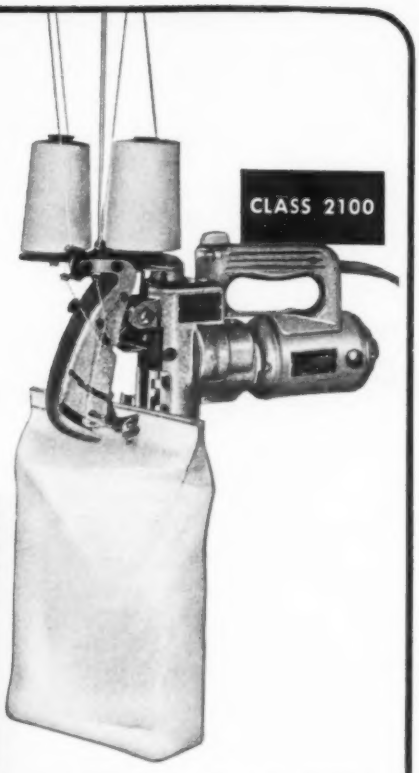

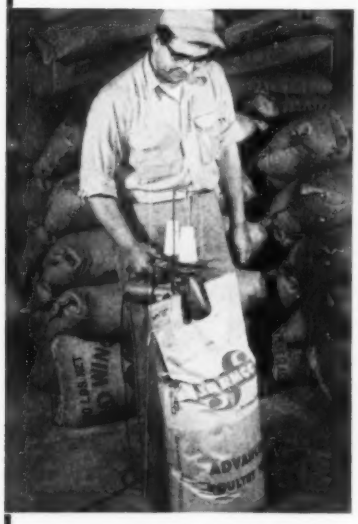

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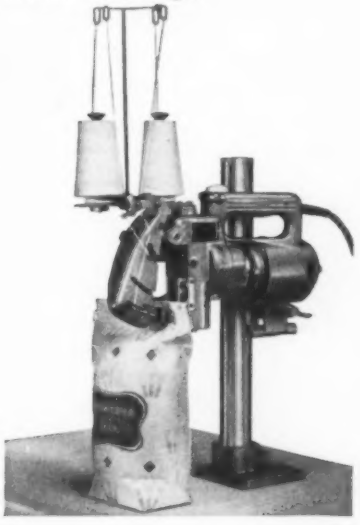
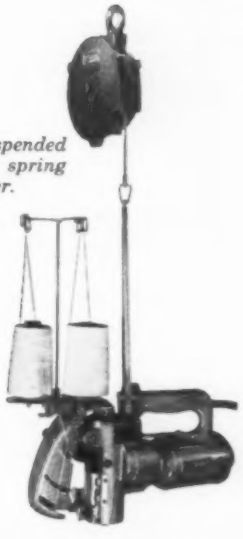
Pedestal mounted Class 2100, ideal for closing small and medium sized bags.



Machine suspended by top lock spring balancer.



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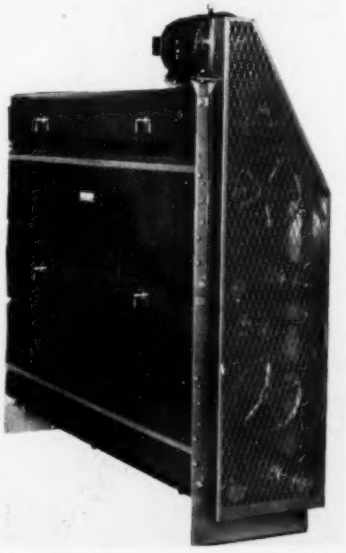
are 12 in. inside diameter, 60 in. long, and revolve at about 60 rpm. As material feeds in one end, it rolls and tumbles gently upon itself, covering more than one third of the perforations. With more than 14 in. of the circumference covered the entire length of the cylinder to a depth of 2 in. to 4 in., it requires about one minute for wheat to travel from the feed to the tail end. Depth of the material, and the tumbling action, places a gentle pressure on the grains in the slots, giving in effect a mild "press fit" for accurate, uniform thickness sizing.

The slots are perforated at the bottom of a "corrugated" groove, with steeply slanted sides. The slots, which are 1⅛ in. long, are available in sizes from 3/64 in. to 24/64 in. with over 40 sizes in between. From 3/64 in. to 7½/64 in. perforation the slots are available in ¼/64 in. sizes, so a broad selection is available to meet almost any cereal grain requirement.

The "corrugation" not only tips the lengthwise split wheat on edge, but also aligns the long grains parallel to the slot to help guide them through. The slotted perforations are more accurate than most precision laboratory test screens on the market, because the holes are perforated one hole at a time with a single punch to a tolerance of about 2/1000 in. plus or minus. All of the Precision Grader cylinders are heat treated and hardened by a special process. This insures long wear and reduced probability of perforations being bumped out of size and shape during operation.

The method of keeping the perforations clean and efficient is also



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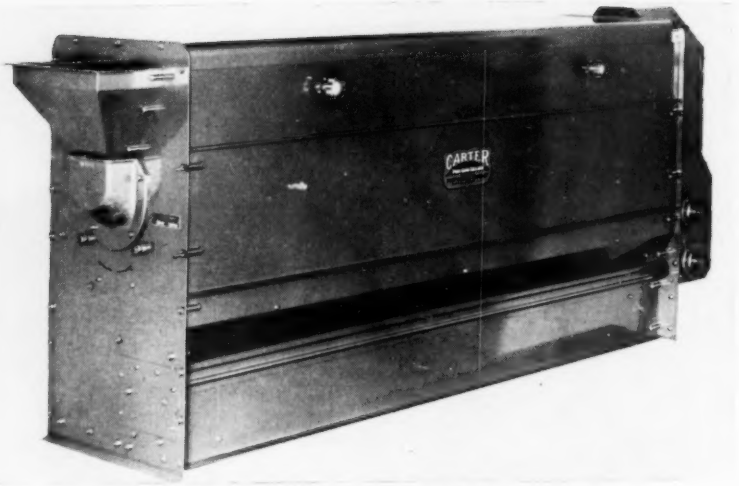

No. 1 Carter Precision Grader

unique. Since the screen is a revolving cylinder, turning at about 60 rpm. (once each second) the perforation is turned upside down with each revolution, permitting complete emptying of the perforations. An unusual, five-bladed, power-driven rubber tapper rapidly but gently taps any grain or particle sticking in the slot back into the cylinder. Since the five rubber blades are about ⅛ in. thick and 4 in. wide by 60 in. long, the "slap" on the cylinder sets up a sharp but gentle vibration, so that most of the particles fall out by themselves. Grains more firmly stuck are tapped out. Stubbornly wedged grains are pressed out of the slot as the wide rubber blades wrap around their shaft, overlapping of the wide strips making a "roller" which is as soft as the ball of your thumb.

The machines are constructed entirely of metal, totally enclosed, and fitted with suction connections so that suspension dust created by the tumbling can be drawn off. The machines are available in one to six screen units, and can handle from 25 to 35 bu. an hour per screen. They are constructed to meet specifications of the pure food and drug regulations.

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Precision Graders (continued)

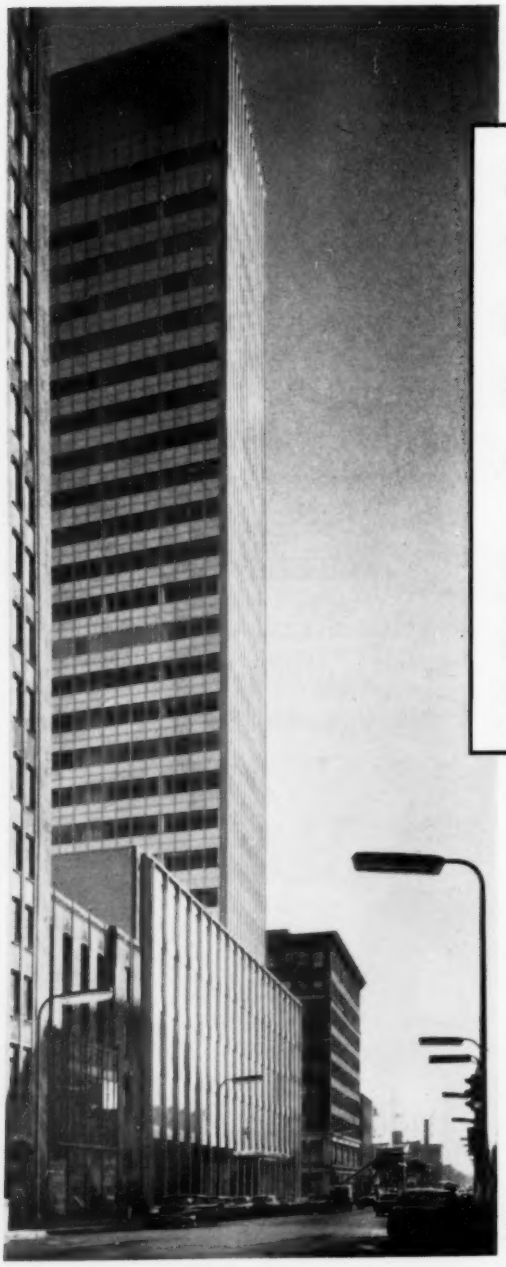
Since the motion is entirely rotary, there is no shake or vibration to limit the installation. In fact, the machines can be readily hung from the ceiling or mounted on wall brackets, if space is limited. A single screen unit weighs less than 500 lb.

Single cylinder units are designed to have a totally enclosed, dust tight ⅓ hp. motor mounted inside the machine frame. Multiple cylinder units containing 4 or 6 cylinders (for large capacity requirements) have a ¾ or 1 hp. motor mounted on top. Single cylinder units, with vibrating conveyor, are designed to stack directly upon each other.

The quick-change screen assemblies can be changed in two to three minutes each and are light enough to handle so that the average man can carry one under each arm without much effort. Independently powered drive on each machine permits extremely flexible flow arrangement, or machine grouping, which can be planned to meet almost any building arrangement. The units can be stacked; or they can be grouped so the 6 ft. length of the machine can be utilized as a conveying factor.

Round perforations are available from 4/64 in. to 26/64 in., and can be used interchangeably with the slots to perform any specialized separations necessary. For example, Cheat or Chess is found in some areas in such quantities as to require these drum-type screens. «

Interested millers will have an opportunity of seeing the Simon-Carter plant in Minneapolis at the conclusion of the Association of Operative Millers annual technical conference and trade show May 25. Simon-Carter will be host for lunch and thereafter transportation to the factory will be provided.



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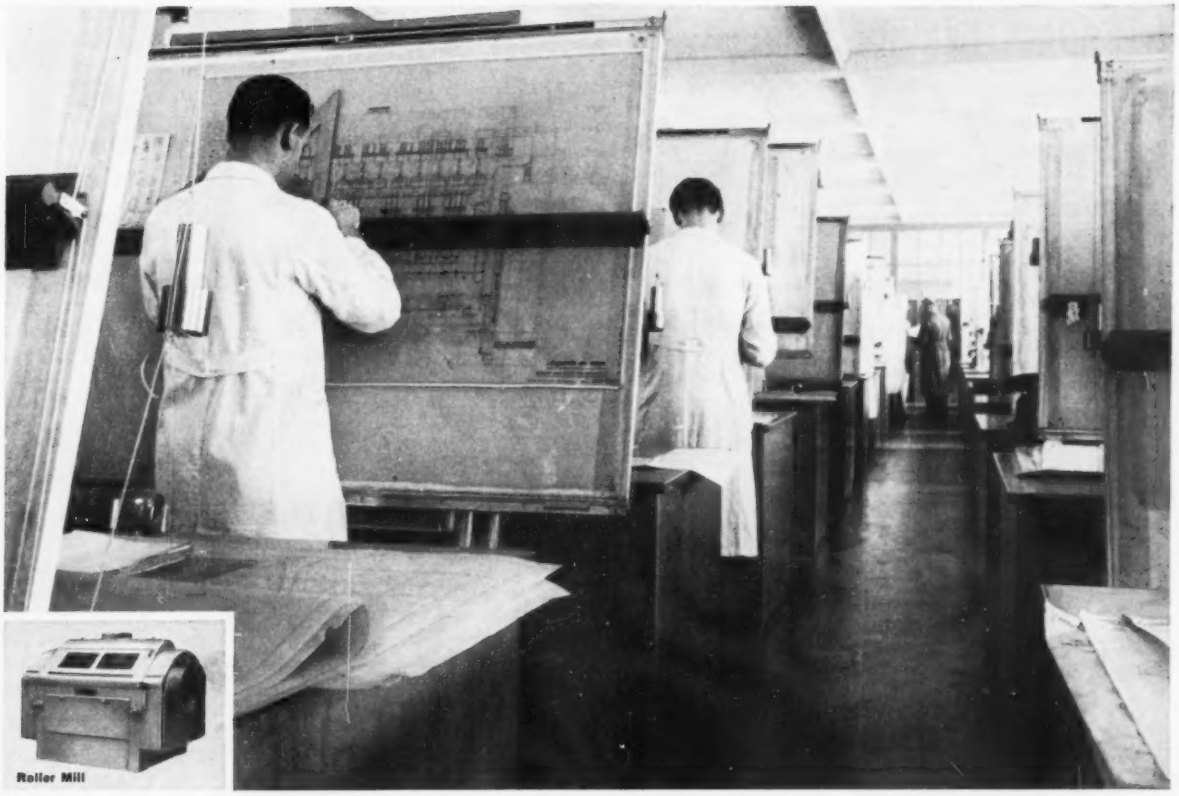

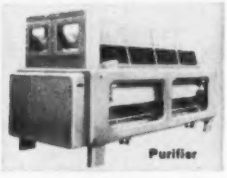

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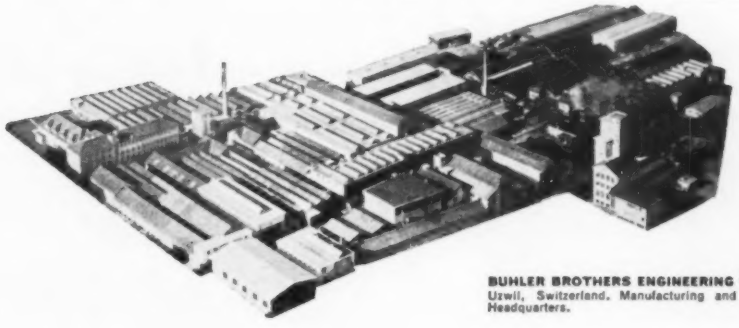

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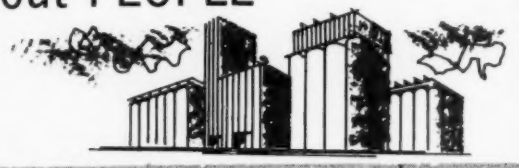

The Quaker Oats Co. has named **John W. Money** as production manager for its Latin American and Pacific operations. He began with the firm in 1950 as a mill trainee in Akron, Ohio, moved up to assistant department manager of the cereal mill in 1954, and two years later was advanced to assistant manager for milling development at Akron. He transferred to Barrington, Ill., in 1960 was coordinator for the company's pilot food plant, which position he retained until his present appointment.

John W. Money

●

Roy K. Durham, now a "roving consultant" since his retirement from the Pillsbury Co., has been in Europe for Great Plains Wheat, Inc. He spent a week in Athens, Greece, moved on to Cairo, Egypt, and then to Rotterdam, The Netherlands. Because he was in Europe while the American Association of Cereal Chemists convened for its annual meeting in Dallas, Texas, Mr. Durham missed his first yearly conclave of the AACC since 1921.

●

R. H. Magerkurth, vice president of operations for Grain Merchants, Inc., Wichita, Kansas, has resigned his position with that firm to form Air Age Equipment, Inc., Topeka, Kansas. The Topeka firm will distribute high pressure air conveying equipment to the flour milling, grain and feed milling industries. Mr. Magerkurth has had extensive experience in all phases of flour mill, elevator and feed mill operation. He is a graduate of Kansas State University, Manhattan, where he earned a B.S. degree in milling technology. Formerly, he

R. H. Magerkurth

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was in the manufacturing department of General Mills, Inc., and also served as superintendent of the Kansas Milling Co. and Whitewater Flour Mills. Mr. Magerkurth's resignation from Grain Merchants, Inc., was announced by **Mrs. Olive W. Garvey,** president.

●

Dean W. Alexander, of the International division of the Daffin Corp., is now in Europe to open a permanent office there for that firm. As resident sales manager. Mr. Alexander will call on the company's present distributors and will set up new ones for Daffin. He will also seek joint manufacturing ventures in Europe for Daffin. Mr. Alexander is a graduate of Yale University and was with the Pillsbury Co. before joining Daffin. He recently completed a nine-month training program in preparation for his overseas assignment.

D. W. Alexander

●

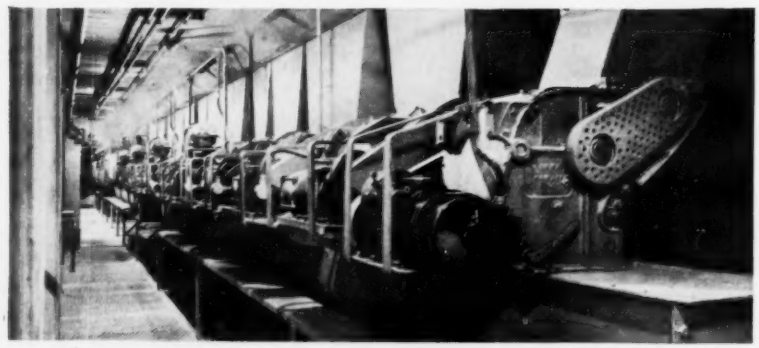
Russell Miller-King Midas Mills has transferred **Frank A. Lindholm** to Minneapolis as assistant general mill superintendent, reports **Otto F. Wilke**, vice president in charge of flour milling. Mr. Lindholm began with the firm in 1949 at Hastings, Minn., and was advanced to assistant superintendent there in 1950, then to superintendent in 1952, which position he held until his present promotion. Replacing him as mill superintendent at Hastings is **William E. Engebretson**, previously milling engineer at the company's Alton, Ill., plant. **Anthony B. Kramer**, formerly second miller at Valley City, N.D., moves to Hastings as assistant mill superintendent.

●

The Pillsbury Co. has reported two changes in the area of its agricultural activities. **Ovel Johnsrud**, who joined the firm's feed division headquarters' accounting department in 1952, now becomes controller for Pillsbury's agricultural area. **J. C. Finlayson**, who formerly held that position, is now assigned to special projects in the agricultural field. Mr. Johnsrud was advanced to plant account manager at Springfield, Ill., in 1955, followed by transfer a while later to Minneapolis and promotion to supervisor of all plant and cost accounting. In 1959 he became accounting and control manager for Pillsbury's merchandising divisions, which position he held until his recent appointment. «

Ovel Johnsrud

Gain *accurate* blends and low cost, trouble-free production



with

DRAVER MICRO-MASTER FEEDERS

Flour blending systems of Draver Micro-Master Feeders benefit users two ways: micrometric control of feeding rates assures high and consistent accuracy—and the system operates with Draver dependability and economy. Micro-Master drive is available on smaller size Dravers, too—to feed enrichments or additives for self-rising flours and mixes.

If *you* are interested in gaining a high degree of accuracy at a practical cost—install Draver Micro-Master Feeders for blending from your bulk storage bins. Write for recommendations on new installations, or on converting present Dravers to Micro-Master drive.

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MULTIWALL BAGS OUT-PERFORM CONVENTIONAL KRAFT IN THE 3 TOUGHEST TESTS IN PACKAGING TODAY!

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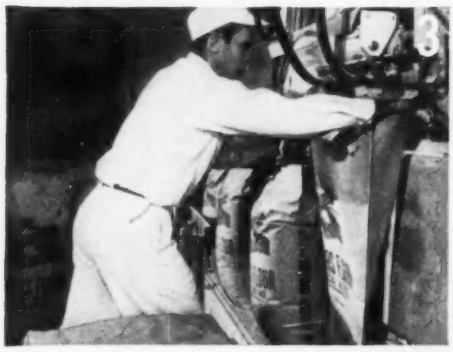
Multiwall and baler bags made of new CLUPAK extensible paper withstand the strain and impact that produce costly breakage in conventional bags. This increased toughness allows multiwall and baler bag users to increase package strength yet decrease the number of plys with resulting economies. The next time you order, say CLUPAK before you say paper and see how it out-performs your present packaging material.

2 In The Warehouse!

Stack them high! Multiwalls and baler bags made of CLUPAK extensible paper hold greater loads, take greater strains, stack compactly and safely even with lower basis weight paper. The stretch and "give" built into CLUPAK extensible paper lets it "ride" with punches that often open holes in conventional kraft. Bags with the trademark CLUPAK warehouse faster—without "kid glove" treatment.



3 On The Filling Line!

Here, where multiwalls get their first and often most rigorous test, particularly on high speed filling and packaging equipment, CLUPAK extensible paper multiwalls are unexcelled! Their high energy absorption reduces breakage, helps maintain uninterrupted production schedules, cuts product waste and repackaging costs. Plan a trial shipment of multiwalls made of CLUPAK extensible paper!

Prior to CLUPAK extensible paper, there were no controlled standards of toughness in the paper industry. Clupak, Inc., is proud to have established these standards and permits the use of its trademark only on paper which meets these rigid toughness requirements.

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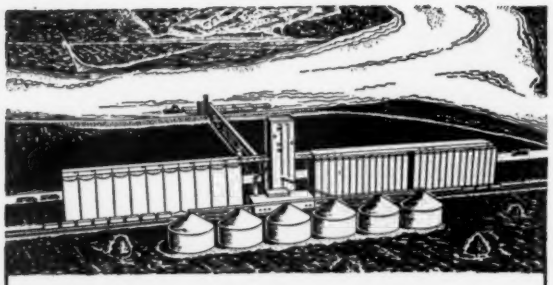

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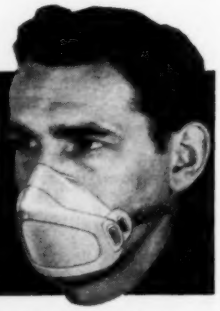

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FLEX-A-FOAM DUST MASK ®

FLEXO PRODUCTS, INC. • Westlake, Ohio

Wheat Field Day, Dedication Of K-State Mill Scheduled

Millers, wheat men and bakers should circle the dates of May 16-18 on their calendars—reserving them for the 17th annual field day of the Kansas Wheat Improvement Assn. and dedication of the new pilot flour milling and laboratory facilities at Kansas State University, Manhattan.

It will be an exceptional opportunity for all concerned in the growing, processing and final product preparation of wheat flour products to view first hand the results of their joint efforts in providing the new pilot mill at Kansas State.

As in past years, growers of wheat will have an opportunity to discuss directly with flour millers and bakers the qualities desired in their grain. Millers, for their part, will be able to address both the growers of their raw materials on the one hand and the bakers who use their flour on the other. Bakers, in turn, will have the opportunity to view the wheat and to speak with growers and processors who handle it from planting through the various processing stages until it reaches their bins.

Wheat Field Day Speaker

The program will begin with cocktails and a buffet dinner the evening of Tuesday, May 16, in the Tudor Room of the Kansas City Club in Kansas City.

For those who will require transportation from Kansas City to Manhattan, a special Union Pacific train has been provided. It will leave the Union Station in Kansas City at 2 p.m. Wednesday, May 17, for Manhattan. Arrangements also have been made for a return train to Kansas City, which will leave Manhattan at 4 p.m. May 18. Those planning to attend any of the functions, or who require transportation, are urged to make their reservations early, with checks payable to The Millers of the Kansas Wheat Improvement Assn., 608 Board of Trade Bldg., Kansas City 5, Mo.

For the field day, Orville L. Freeman, secretary of agriculture, will deliver a major address on wheat.

May 18 will be dedication day for the staff of Kansas State, and for all of the millers, allied firms and others who have contributed to the pilot flour mill. Following the dedication ceremonies there will be a tour of the pilot mill, the laboratories, test bakery and classroom facilities.

(A list of the donors of machinery and equipment to the Kansas State facilities appears on page 18.)«

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Rely on Mathieson bicarbonate of soda for the highest standards of quality and purity. Choose from the following grades: U.S.P. Powdered and Granular, Miller's Special Regular and Miller's Special No. 2, and Fine—other grades for special requirements. Available from Saltville, Va., and strategically located distributor stocks.

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244 CHEMICALS DIVISION **Olin**

With a Fuller Airveyor Conveying System . . .

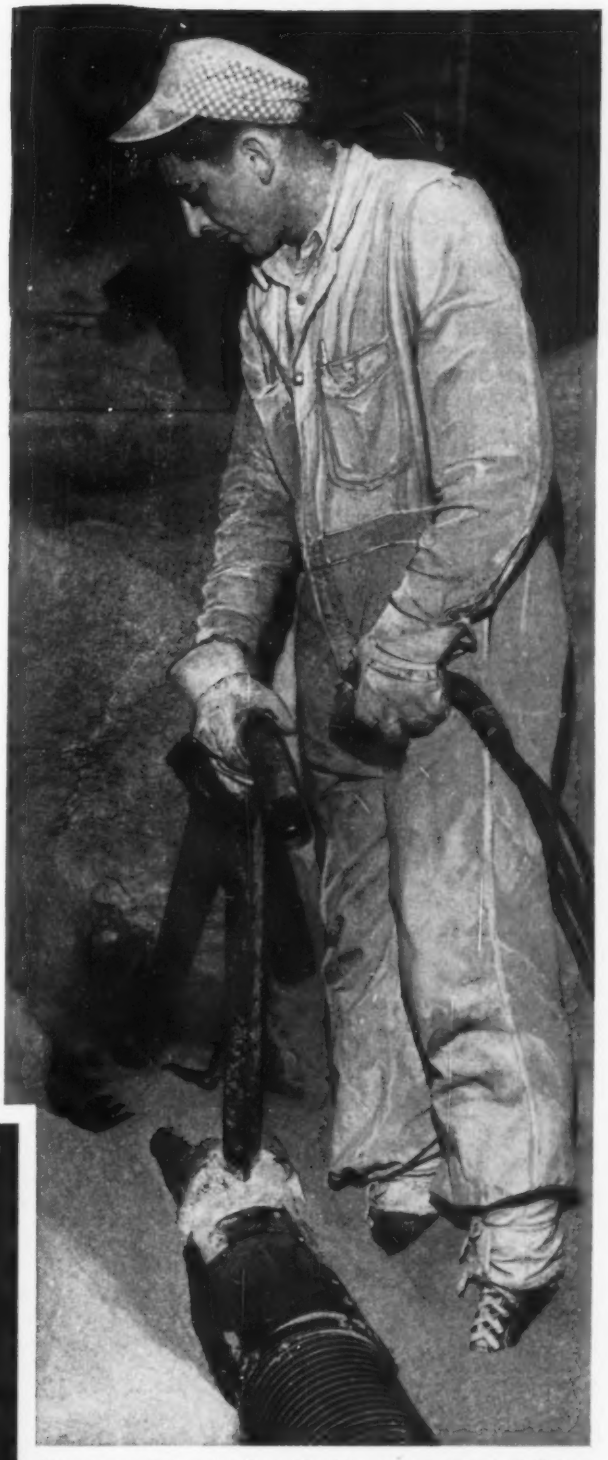
Unloading 30 Tons of Feed Ingredients In Less Than One Hour Is a One Man Job at Ralston Purina

A Fuller Telescopic Airveyor® pneumatic conveying system moves bulk animal and poultry feed ingredients from siding to storage at Ralston Purina's Harrisburg, Pa., mill. The operator keeps the Airveyor nozzle buried in the material by regulating the length of the hose—the telescopic Airveyor conveying system does the rest.

Soybean meal, midds, bran, and other ingredients are sucked vertically 165 feet up 12 stories to any one of 30 storage bins. As the operator works deeper into the car, he simply pushes a button to raise or lower the hose one foot or twenty to reach *any* point within the car. Work never stops to add or take off sections of hose.

Obtaining the savings inherent in bulk purchasing, eliminating the dust hazard, and greatly reducing handling costs are some of the ways Fuller Airveyor conveying systems cut operating expenses in the moving of dry, bulk materials.

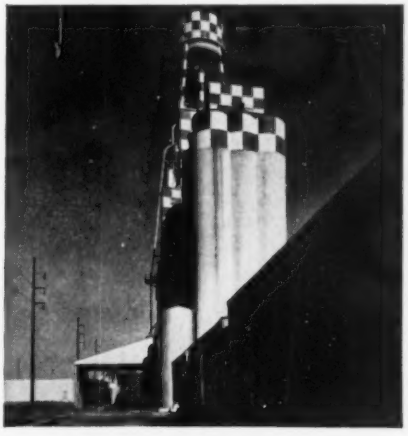
Consider the low initial cost and many operating economies of Fuller pneumatic conveying systems when you plan to increase plant capacity. Write or phone today outlining your problem. Fuller will gladly furnish additional information with appropriate recommendation. 1323C A282



Operator controls unloading of feed ingredients at rate of 30 tons an hour — up 12 stories to storage, just by pushing a button.

Visit Fuller Booth J-3, 4 at AOM Show

"See Chemical Engineering Catalog for further details and specifications."



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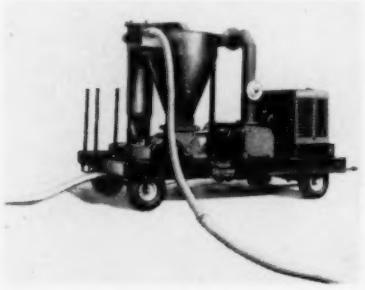
Clorofume Fumigant

Frontier Chemical Co. has available its Clorofume fumigant, said to be a field proved, high potency liquid fumigant. The company claims that the user can apply Clorofume himself in dosages recommended on the label with considerable saving in the cost per bushel of grain protected. Frontier also states that the product provides long lasting protection against reinfestation. Clorofume contains 23.75% carbon bisulfide blended with chloroform and ethylene dibromide for increased safe killing power. The product is registered by the U.S. Department of Agriculture and the Food and Drug Administration. It is listed with the Underwriters Laboratory and rated fire and explosion safe by fire insurance companies.

Circle No. 4813
on Reply Form for Details

Portable 'Airveyor'

A portable "Airveyor" unit for pneumatic transfer of whole grains, seeds, and similar granular materials is being offered by the Fuller Co. The Airveyor is said to combine maximum capacity and portability by utilizing a combination vacuum-unloading, pressure-delivery system. The portable transfer unit offers a positive



pressure, constant displacement blower said to be of high efficiency, permitting the unit to propel a dense stream of material through relatively small ducts. The portable unit is completely pre-assembled at the factory and delivered ready for use at the job site. Incoming material is separated from the conveying air by a cyclonic receiver on the vacuum (intake) side of the blower and reintroduced through a high efficiency airlock into conveying air on the pressure (discharge) side of the blower. A second stage separator is employed to prevent carry-over of material which might damage the blower.

Circle No. 4814
on Reply Form for Details

Pulverizing Mill

Pulverizing Machinery Co.'s line of "Mikro" impact grinding machines is described in a bulletin now available. The manufacturer states that its Mikro-Pulverizers have found a wide use in large-scale operations taking 100% whole wheat flour to varying degrees of fineness. It is stated that the same mill may be used for production of cracked wheat, corn meal, buckwheat, rye and cracker meal. Construction, performance and other details are included in the descriptive bulletin, No. 51A.

Circle No. 4815
on Reply Form for Details

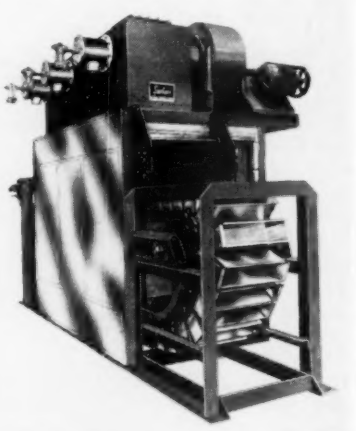
Homogeneous Mixing

Strong-Scott Mfg. Co. is now offering its HM Mixer. Available through the grain processing equipment division, the mixer is said to provide triple action mixing to assure a homogeneous mix in 2 to 7 min. for even the most minute quantities of micro ingredients. A full length ribbon assembly is said to eliminate dead spots and material build-up. The company claims such features as additional batches per hour, with greater capacities and less labor, and reduced maintenance and production costs. A number of accessories are available with the mixers. The new mixer is furnished in twelve models ranging in size from five to 510 cu. ft. capacities.

Circle No. 4816
on Reply Form for Details

'Continuous Toaster'

The Surface Combustion Division of Midland-Ross Corp. is offering its Surface Combustion continuous toaster, designed primarily for puffing and drying breakfast food products. The firm states that stainless steel construction is provided inside and out, with all structural framing of regular steel coated with heat-resistant paint. The tunnel is insulated and divided into separate zones of control for greater heating flexibility. Specified product exposure is controlled by



a continuous conveyor with a variable speed drive. The toaster has been designed to conserve floor space, is said to have totally automatic operation and to be easily adaptable to production line techniques.

Circle No. 4817
on Reply Form for Details

Industrial Mixer

A high speed industrial mixer designed for the food processing and baking industries, among others, has been developed by a firm in The Netherlands, Machinefabriek L. B. Heesen. The mixer is rectangular and vertical, and is said to have considerable economy of space plus more concentrated mixing action. The firm claims that the more concentrated mixing action is due to varying distance between the conveyor screw and the wall, thereby giving the rotating mixing substance a varying, more intensive and sometimes faster speed. In addition, when the mixing process is completed, the entire substance is emptied because of tapered construction of the mixing vessel. Seven different sizes of the mixer are available. The smallest model has a capacity of 121 imperial gallons and measures 28 in. deep by 28 in. wide by 51 in. high. The largest model has a capacity

of 2,310 imperial gallons, and is 10 ft. long by 5½ ft. wide by 11 ft. high. Two median models with capacities of 242 and 484 imperial gallons, respectively, are supplied with hoppers. The mixer is driven by an electric motor with V-belt transmission, which on the larger models, is provided with a tension pulley.

Circle No. 4818
on Reply Form for Details

Fumigant Safety

The agricultural division of American Cyanamid Co. has compiled a list of safety procedures for use in handling fumigants. The procedures contain no product promotion, and are thoroughly adaptable to users of other fumigants. The bulletin, titled "Safety Procedures," groups these procedures into several sections. These are general safety instructions, specific safety precautions, preliminary preparations for bin fumigation, bin entry, HCN application, HCN line break, sampling during fumigation, dismantling cylinder equipment, sealing off bins after gassing, and first aid procedures. Each section clearly describes the step-by-step routine required. The company states that this routine, carefully followed, will insure against human lapse, thoughtless action, and will protect against unguarded moments.

Circle No. 4819
on Reply Form for Details

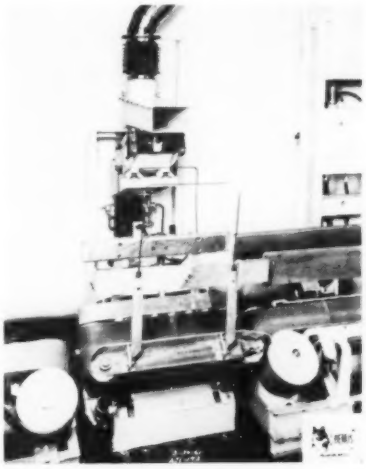
Bag Closure Equipment

West Virginia Pulp & Paper Co. has developed modification equipment that will permit manufacturers and users of multiwall bags to apply the four-ply, double-strength closure ImpacTape in their own bag plants. The ImpacTape modification equipment has been specially designed for both H and E heads of Union Special Series 80600 sewing machines, according to West Virginia. ImpacTape for reducing bag breakage at the sewing line was introduced by West Virginia recently, and development of modification equipment has followed to make ImpacTape available on an industry-wide basis.

Circle No. 4820
on Reply Form for Details

Trim-Weigh Scale

A high speed Trim-Weigh Scale, Series 3321, can be provided by Bemis Bro. Bag Co. The Trim-Weigh Scale is part of the Bemis High



Speed Packer-Aid machine. Large flour bags of 100-140 lb. are brought to exacting weights by the Trim-Weigh Scale after it receives a bag from the firm's Auger Packer.

Circle No. 4821
on Reply Form for Details

Small Pulver-Mill

The Sturtevant Pulver-Mill, an impact unit with integral air classifier, now is available as a 15-in., 25 h.p. mill capable of producing up to 15 cwt. hr. Sturtevant Mill Co., the manufacturer, states that the mill is for small-quantity grinding of soft and medium-hard materials. It offers patented, double-impactor grinding, exclusive deflector wall construction, and adjustable air classification to allow end product selection. Introduction of the small-capacity mill marks the second addition to the line since the original, 5,000 lb. hr. unit was introduced in May of 1959. Just a year after initial introduction, May of 1960, Sturtevant announced availability of mills capable of crushing up to 15,000 lb. hr. Now it is offering the small capacity mill. Information and service are available through Sturtevant's grain processing division.

Circle No. 4822
on Reply Form for Details

Volumetric Feeder

Wallace & Tiernan, Inc., has added the Merchen Volumetric feeder to its line of equipment. The unit measures all free-flowing, powdered, granular or lumpy solids by volume and has a maximum capacity of 3,600 cu. ft. per hour. The firm claims that the Merchen is the only volumetric feeder with belt-and-feedgate design. Models are available with 9 in. or 18 in. Buna-N feed belts. The smaller model feeds from 0.1 to 600 cu. ft. per hour; the 18 in. model from 0.6 to 3,600 cu. ft. per hour. Depending on the density of the material fed, this equals 3 to 3,000 lb. min. Two additional advantages claimed are: (1) Either size can be converted to a gravimetric feeder by adding weighing components and (2) an optional

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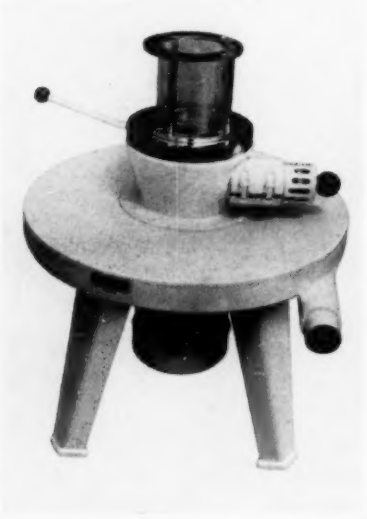
off-feed switch stops the feeder or actuates an alarm when feed falls below a selected rate. An illustrated, four-page catalog on the feeder is available from Wallace & Tiernan.

Circle No. 4823
on Reply Form for Details

Middlings Reduction

MIAG Northamerica, Inc., has available its "Strato-De-Agglomerator" for reducing the number of roll stands used for middlings reduction. The De-Agglomerator is used behind a roll stand for middlings reduction,



runs at 3,600 rpm. and is built in four sizes. Capacity ranges from 1,400 lb. middlings an hour up to 5,000 lb. an hour. Motor size ranges from 2.5 hp. up to 5 hp. Air developed by the machine, according to MIAG, is used for pneumatic conveying of stocks directly into a cyclone separator.

Circle No. 4824
on Reply Form for Details

Conveying Systems

A bulletin on pneumatic conveying systems, fully illustrated, is available from the Day Co. The bulletin is No. M-260, which includes descriptive material on the various Day equipment and systems offered, with a complete description of the services provided. Included are photographs and descriptions of flour delivery from bulk truck to storage tanks, and accessory equipment used. Included also are photographs and descriptions of the firm's RJ filter equipment for pneumatic conveying and Day dust control equipment.

Circle No. 4825
on Reply Form for Details

Sedimentation Test Kit

Seedburo Equipment Co. reports availability of the Zeleny Sedimentation Test Kit for indicating the bread baking quality of wheat. Seedburo reports that the kit is being manufactured by the Fred Stein Laboratories. Seedburo points out that there is at present no indication of the sedimentation test replacing the protein test. However, the firm claims that the sedimentation test is simpler in use for reliable measurement of bread baking quality.

Circle No. 4826
on Reply Form for Details

Reconditioning Service

The Day Sales Co. will provide a service for cleaning, repairing and conditioning filter tubes and sleeves used in filter type dust collectors.

DIRTY FILTER TUBE (TOP); AFTER RECONDITIONING (BOTTOM)

The company states that the service can be applied to tubes of all types, sizes and materials. The service includes removing tape and stitching, vacuum cleaning, thorough dry cleaning, inspecting filter sleeves for quality and size, splicing in new material if required to return tube to proper size, and adding new tape and stitching. Day Sales states that the complete rejuvenating service restores original porosity of tubes. «

Circle No. 4827
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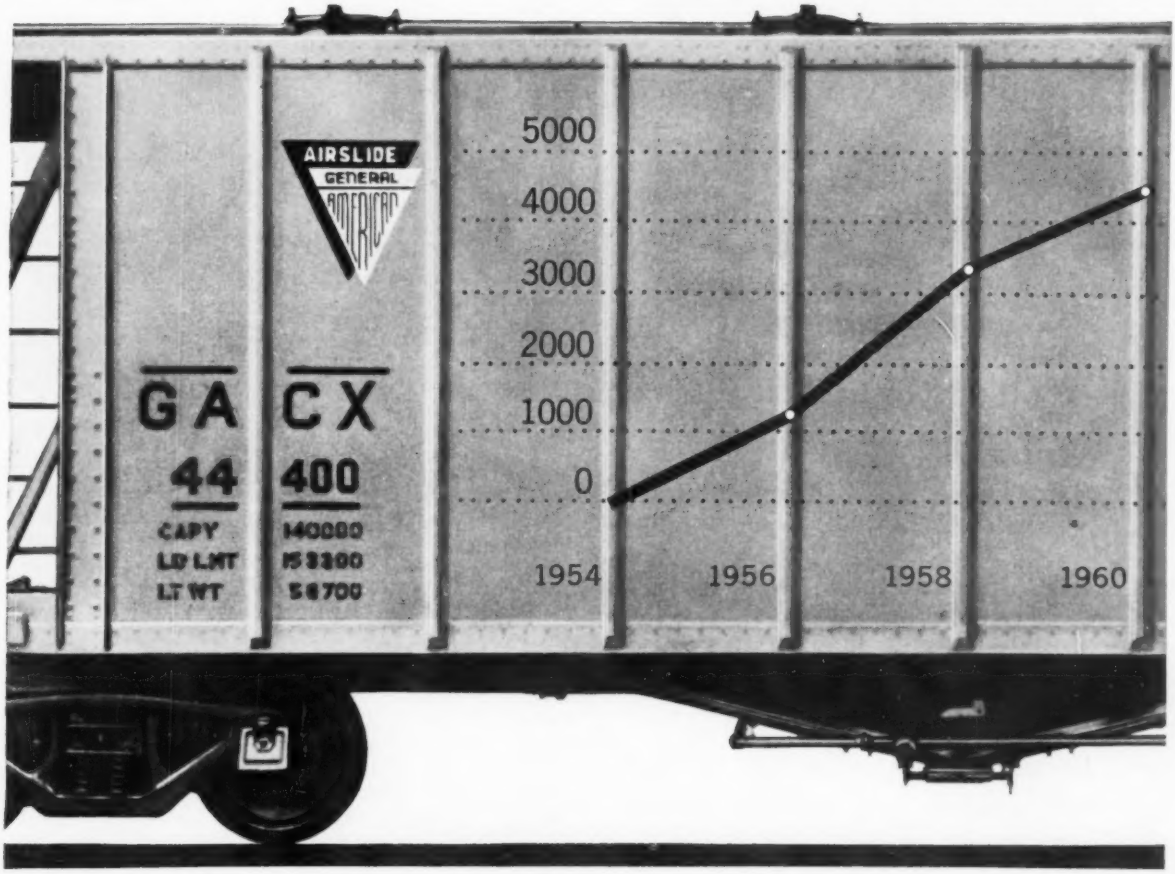

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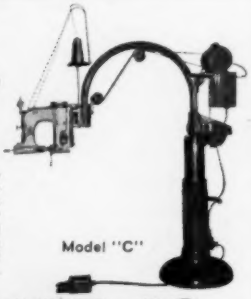

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TENNESSEE

YOUR AOM GUIDE ... TO MINNEAPOLIS

By

Ernst Auer
Germany

Fritz Schiess
Switzerland

Dan Strachan
Scotland

WAIKIKI ROOM—Located in the AOM headquarters hotel, the Pick-Nicollet, visitors may dine exotically amidst the dramatic beauty of the Hawaiian Islands. Authentic Polynesian foods and beverages are served. The ladies attending the conference will breakfast there, perhaps not as exotically, but certainly as superbly on May 24 as guests of Sterwin Chemicals, Inc. Victor is maitre d'.

●

JOLLY MILLER—Also located in the Pick-Nicollet, the room maintains the tradition of the old Nicollet House, famed meeting place of millers and mill furnishers 60 or 70 years ago. Steaks rated as excellent. Over the bar is a millstone, a relic of the great Washburn-Crosby mill explosion of 1878. Ask for Paul at noon, Darrell in the evening.

●

SCHIEKS—45 South 3rd St. A Minneapolis tradition and another gathering place for millers. Every third Tuesday in the month, it is the scene of the Millers' Round-table Luncheon when the technologists and allied men — out-of-town visitors are always welcome — get together for a talkathon. General manager is genial George Ramsey, a proud member of AOM, and he will have an especial welcome for those who introduce themselves as AOM members. The steaks are excellent and there's an overtone of good German cooking in the food. It is also the home of the famed Schieks Singing Sextette, directed by Glyde Snyder, which has entertained at previous AOM conferences in Minneapolis. If George is not around, ask for Chico or Ben. Reservations are advisable.

George Ramsey

●

FUJI-YA—814 La Salle Avenue. Japanese food, anyone? One of the most unique of Minneapolitan establishments.

When the Mill Mutual man heads for your plant, here are some of the things he can do for you:

✓ 1. Look over policies to see if they give the insurance you need at the lowest possible net cost.

✓ 2. Inspect plant from top to bottom to see if all possible is being done to prevent loss — not only from fire but also from production slow-up or break-down.

✓ 3. Show how simple "preventive maintenance" records and follow-up can reduce losses — and increase values, production and profits.

✓ 4. Show how personnel in plants large and small can be organized — all the way from a small committee to a fire brigade — to prevent loss.

The Mill Mutual man is one of a hundred fieldmen and engineers day by day visiting mills and elevators nationwide, wherever grain is stored or processed.

They represent:

GRAIN DEALERS MUTUAL INSURANCE COMPANY, INDIANAPOLIS, *Est.* 1902;

MILLERS NATIONAL INSURANCE COMPANY, CHICAGO, *Est.* 1865;

MILLERS' MUTUAL INSURANCE ASSOCIATION OF ILLINOIS, ALTON, *Est.* 1877;

MICHIGAN MILLERS MUTUAL INSURANCE COMPANY, LANSING, *Est.* 1881;

PENNSYLVANIA MILLERS MUTUAL INSURANCE COMPANY, WILKES BARRE, *Est.* 1887;

MILL OWNERS MUTUAL INSURANCE COMPANY (OF IOWA), DES MOINES, *Est.* 1875;

MILLERS MUTUAL FIRE INSURANCE COMPANY (OF PENNSYLVANIA), HARRISBURG, *Est.* 1890;

THE MILLERS MUTUAL FIRE INSURANCE COMPANY OF TEXAS, FORT WORTH, *Est.* 1898;

AMERICAN MANUFACTURERS MUTUAL INSURANCE COMPANY, CHICAGO, *Est.* 1837.

Collectively these companies are known as The Mill Mutuals and compose the Association of Mill and Elevator Mutual Insurance Companies, which operates the Mill Mutual Fire Prevention Bureau, and Departmental Offices of The Mill Mutuals as follows:

NORTHWESTERN DEPARTMENT, MINNEAPOLIS;

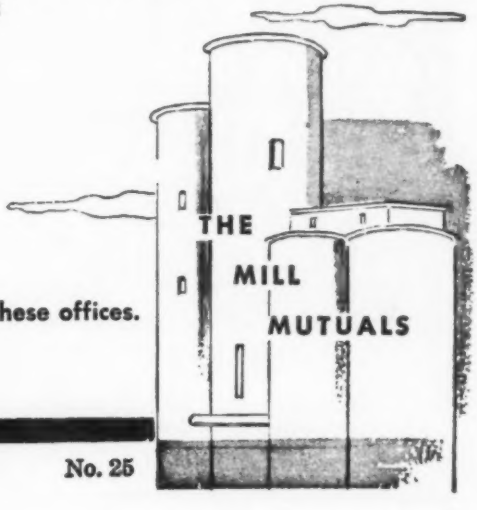
SOUTHWESTERN DEPARTMENT, KANSAS CITY;

OHIO DEPARTMENT, COLUMBUS;

PACIFIC DEPARTMENT, SEATTLE;

SOUTHEASTERN DEPARTMENT, NASHVILLE.

This service is available to you through any of these offices.



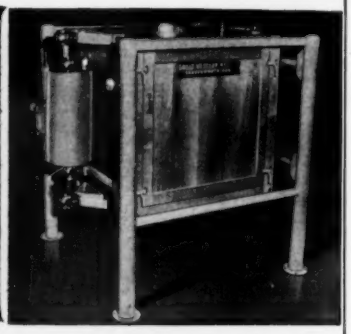
No. 25

NEW!

FLOOR MOUNTED SIFTER

Sanitary — Tru-Balance For Quality Control

The TRU-BALANCE floor mounted SIFTER



It's new. A brand new sanitary sifting machine, developed by the Great Western Manufacturing Company for rebolting flour before packers or bulk loading operation. Also used for screening any dry materials. Feed dresser, grader, etc.
Can make up to 8 separations if required. The most perfectly balanced floor mounted sifter made.
No vibration imparted to floor or building.
Write for complete details.

OUR BOOTH IS M-14 AT THE OPERATIVE MILLERS CONVENTION

GREAT WESTERN Manufacturing Company
Ernest Schroeder Leavenworth, Kansas John E. Baker

BE AS PROUD OF YOUR JOB AS WE ARE OF OURS, *for*

BREAD IS THE STAFF OF LIFE

The

CONSOLIDATED FLOUR MILLS CO.

OFFICE: KANSAS CITY, MISSOURI
1590 W. 29 ST. • TELEPHONE LOGAN 1-2400
MILLS AT KINGMAN & WINFIELD, KANSAS
CAPACITY • 7,850 CWTS. —— STORAGE • 3,000,000 BU.

Authentic Japanese food served in the tradition of old Japan. Specializes in Sukiyaki, made at the table by Japanese hostesses in native costume. Mizutaki, Tempura, Teriyaki and many other Japanese dishes are served. Millers will be interested in a bean curd, "tofu", an Oriental staple made from soybeans. This is a substitute for meat with a high vegetable protein value. Ask for Mrs. Norman Weston or Harry Nishimura.

•

NORMANDY VILLAGE—In the Hotel Normandy, 8th Street at 4th Avenue. Features savory charcoal-grilled foods served in a 16th century Norman atmosphere . . . rich in stout oak panelling, interesting antiques and colorful coats of arms. Very highly recommended and one of the most enterprising of eating places. Maitre d' is called George—and even members of the staff don't recall his last name for he's George to practically everyone. Special service for those visiting millers who announce themselves, says the friendly George.

•

HARRY'S—74 South 11th Street. Another Minneapolis institution and those who have dined there on previous visits will not recognize it now after a complete face lifting. The third floor dining room, elegant and sophisticated, is noted as a haunt of local radio and TV performers—a good opportunity to talk about the qualities of the bread at the table with a good chance the opinion makers will overhear. The food matches the decor of the three-storied restaurant and Clem, veteran maitre d', promises to be on the lookout for visiting AOM members. Steaks and South African lobster tails are specially recommended.

•

IMPERIAL ROOM—Located in the Hotel Leamington. Features gourmet foods served with continental elegance. The ladies will lunch in the hotel's Hall of Presidents as guests of the milling companies of Minnesota on Tuesday, May 23. Note specially—Smorgasbord noon till 8:30 p.m. Sundays.

•

JEANS—808 Hennepin Avenue. For those who like to "make like they're in Paris." Specializing in original French food with appropriate atmosphere; you dine by candlelight.

•

JOHN'S PLACE—28 South 6th Street. A Minneapolis tradition for 70 years. Specialty is Chinese food, especially the Cantonese cuisine. Enjoy, too, the Chinese decor typical of many of the Chinese restaurants established around the turn of the century. Still in use are the high marble-topped mother-of-pearl inlaid tables, colorfully embroidered panels and gold foil covered camphor wood carvings. No liquor served. Howard F. Woo is the manager. There's American food, too.

•

NANKIN—20 South 7th Street. Rated as one of the most beautiful Chinese restaurants in the U.S., the food

The authors of this Guide appreciate there are many other fine restaurants in Minneapolis besides those listed. However, in making their recommendations they have taken into account, besides quality of food and service, reasonableness of tariff and accessibility. Mr. Auer is with MIAG Northamerica, Inc.; Mr. Schiess with the Buhler Corp., and Mr. Strachan with Simon-Carter Co.

matches the decor . . . modern Chinese. Menu includes American as well as Cantonese Chinese dishes. There's a cocktail lounge attached. Manager Harry Lee will welcome AOM members.

•

CHARLIE'S—701 4th Avenue South. Dining pleasure in Ye Olde Tyme atmosphere which means Olde Norman and Olde English. Rated as one of the best restaurants in the U.S., the food proves the correctness of the rating.

•

McCARTHY'S—West of town on Wayzata Boulevard, half as far again from town as the office of THE Northwestern MILLER—you pass it on your left. Excellent food and service in an exquisite setting. Mention AOM to the maitre d' and you will be sure of good service.

•

MICHAEL'S—In Golden Valley, off Highway 100. Well worth the drive out of town—about 10 minutes—for food and surroundings. Owner Michael Crakes is a collector and the decor of the various rooms shows signs of his sure hand. The Caribbean Lounge features one of the best collections of ocean game fish in the U.S., all gathered by Mr. and Mrs. Crakes. For the student of art, pictures by local artists will attract attention. But good food predominates—wild ringneck pheasant served with Minnesota wild rice is a gourmet dish. So is curried shrimp from the Bahamas. Steaks come up to 32 oz. in size while Rainbow trout, pan fried Rocky Mountain camp style, and Stone Crabs are famous in the area. Ask for Bess Van Horn during the day, John Skog in the evening. And if you have similar collecting tastes to Michael, ask for him, too. He's an affable fellow.

•

MURRAY'S—26 South 6th Street. Good food. Famous for the Silver Butter Knife and Gold Butter Knife Steaks, an honor awarded by international gourmet Maurice C. Dreicer who makes the awards for THE MILLER's Bread Honor Roll. And Maurice specially recommends Murray's garlic bread.

•

LUNCHING . . .

Members attending the conference will wish to take a quick lunch between sessions in order to have time to visit the Exhibits as well. So, try the Jolly Miller or the Mocha Room in the Pick-Nicollet. And Schieks, another good lunch spot, is two minutes walk away. Go out the hotel through the Nicollet Avenue door, turn right, walk half a block, cross left over Nicollet Avenue and walk another half block down 3rd Street . . . there's Schieks.

Centennial MILLS, INC.
1464 N.W. Front Avenue Portland 8, Oregon
Cable address: Centennial Mills, Inc., Portland, Oregon
Domestic and Export Millers.
Experienced in all types of bulk delivery.
New . . . complete quality control and baked products laboratory.
Complete line of fine quality Bakers' Flours.
Fancy Durum and Winter Wheat Granulars for macaroni industry.
MILLS AT: PORTLAND, SPOKANE, WENATCHEE

Now A REVOLUTION IN IMPACT MILLING
THE UNIVERSAL HIGH EFFICIENCY MILL
VERSATILE • ECONOMICAL
In a Single Pass . . .
• Grinds whole wheat, semolina, corn grits or rolled oats through 020", or 70 to 100 mesh;
• Reduces whole grain to a uniform granular product;
• Pulverizes hay, bran or oat hulls leaving no flakes or slivers;
• Grinds 650 lbs. corn per HP per hour through 3/16 screen.
50 to 70% increased output on feed materials.
May be utilized in lieu of roll breaks and sizing in flour mills.
Consistent cool running. No clogging or blinding of screen even with finest granulation.
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56 SPARKS ST., SUITE 721 OTTAWA, CANADA

Just Punch and Pour
EASY SPOT FUMIGATION
Mill — Bakery — Brewery
DAWSON 73 Spot Fumigant is fast acting and so effective that 1½ oz. in this 2-inch high can will give better insect control than a pint to a quart of commonly used spot fumigants. Safer to handle because premeasured and prepackaged. No hazardous job of transferring fumigant from big containers to bottles. No bottles to break. Easy to distribute. 50 shot cans go in one knapsack. DAWSON 73 vapors penetrate deep stock and remain effective for as much as a week. Many users report essentially continuous freedom from infestation in their equipment from complete applications at three week intervals. Better results are cheaper with DAWSON 73. (U.S. Patent 2,606,857)
DAWSON LOW-DOSAGE FUMIGANTS
Detailed directions and can opener packed in every case of 48 cans. Ask for complete information and prices.
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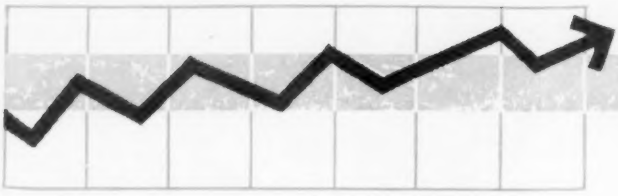

FLOUR PRODUCTION

A Statistical Service Provided Continuously for Readers of The Northwestern Miller for More than Half a Century.

WEEKLY FLOUR PRODUCTION, IN SACKS (CWT.)

Flour production in principal manufacturing areas by mills reporting currently to THE Northwestern MILLER with relationship of production to capacity and to the total estimated output of all mills in the U.S. expressed in percentages:

	Apr. 9-16, 1961	*Previous week	Apr. 10-17, 1960	Apr. 11-18, 1959	Apr. 12-19, 1958
Northwest	729,837	682,210	605,571	646,917	614,404
Southwest	1,394,392	1,385,168	1,454,496	1,368,009	1,146,400
Buffalo	483,124	427,109	518,740	528,282	493,815
Central and Southeast	613,935	618,927	559,320	573,672	549,376
Pacific Coast	447,401	422,175	403,964	421,156	339,331
Totals	3,668,689	3,535,589	3,542,091	3,538,036	3,143,326
Percentage of total U.S. output	80.0	80.0	75	75	75
Estimated total U.S. production	4,585,861	4,419,486			
Accumulated total this month	9,005,347	4,419,486			

*Revised.

	—Percentage of capacity operated in 5-day week—					Crop year flour production ——July 1 to——	
	Apr. 9-16, 1961	Previous week	Apr. 10-17, 1960	Apr. 11-18, 1959	Apr. 12-19, 1958	April 16, 1961	Apr. 17, 1960
Northwest	97	90	83	97	92	30,786,389	29,839,999
Southwest	107	106	113	104	87	61,694,914	61,383,217
Buffalo	96	84	105	111	104	21,254,749	21,419,226
Central and S. E.	96	96	87	101	96	25,659,003	25,754,747
Pacific Coast	93	88	87	134	108	18,240,685	18,862,260
Totals	99	96	98	106	94	157,635,740	157,259,449

NORTHWEST

Minneapolis

	5-day week capacity	Flour output	% capacity
April 9-16	198,500	197,309	99
Previous week	198,500	*194,125	98
Year ago	231,000	166,883	72
Two years ago	237,000	204,443	86
Five-year average			94
Ten-year average			95

*Revised.

Principal interior mills in Minnesota, including Duluth, St. Paul, North Dakota, Montana and Iowa:

	5-day week capacity	Flour output	% capacity
April 9-16	547,575	532,528	96
Previous week	547,575	*488,085	88
Year ago	494,500	438,688	89
Two years ago	430,500	442,474	103
Five-year average			104
Ten-year average			95

*Revised.

CENTRAL AND SOUTHEASTERN

Mills in Illinois, Ohio, Michigan, Wisconsin, Indiana, Kentucky, North Carolina, Tennessee, Virginia, Georgia and eastern Missouri:

	5-day week capacity	Flour output	% capacity
April 9-16	640,200	613,935	96
Previous week	640,200	*618,927	96
Year ago	643,750	559,320	87
Two years ago	570,260	573,672	101
Five-year average			94
Ten-year average			87

*Revised.

SOUTHWEST

Kansas City

	5-day week capacity	Flour output	% capacity
April 9-16	297,750	297,077	100
Previous week	297,750	242,468	81
Year ago	221,750	245,772	111
Two years ago	287,500	258,579	90
Five-year average			106
Ten-year average			99

Representative Mills, Outside of Kansas City (Including Wichita and Salina)

	5-day week capacity	Flour output	% capacity
April 9-16	1,009,109	1,097,315	109
Previous week	1,009,109	*1,142,700	113
Year ago	1,068,800	1,208,724	113
Two years ago	1,032,000	1,109,430	108
Five-year average			108
Ten-year average			99

*Revised.

BUFFALO

	5-day week capacity	Flour output	% capacity
April 9-16	534,500	483,124	96
Previous week	534,500	427,109	84
Year ago	493,500	518,740	105
Two years ago	475,000	528,282	111
Five-year average			108
Ten-year average			104

PACIFIC COAST

Principal Mills on the Pacific Coast

California, Oregon and Washington Mills

	5-day week capacity	Flour output	% capacity
April 9-16	479,200	447,401	93
Previous week	479,200	*422,175	88
Year ago	466,500	403,964	87
Two years ago	315,000	421,156	134
Five-year average			96
Ten-year average			89

*Revised.

DURUM PRODUCTS OUTPUT

Durum products output of mills reporting to THE Northwestern MILLER, in sacks, based on five-day week:

	5-day week capacity	Wkly. production	% of capacity
April 9-16	167,250	173,128	104
Previous week	167,250	*149,592	89
Year ago	156,500	140,721	90

	Crop year production
July 1, 1960-April 16, 1961	7,812,140
July 1, 1959-April 17, 1960	7,686,586

*Revised.

Canadian Price Adjustments

Price adjustment figures announced by the Canadian Wheat Board and in effect April 26 were as follows: To U.K. and other European destinations via Canadian and U.S. Atlantic ports, also via St. Lawrence, Churchill, Canadian and U.S. Pacific ports, 4⅝¢ bu.; to other countries, excluding U.S. and territories, from Canadian and U.S. Atlantic ports, 15⅛¢ bu.; from St. Lawrence, Churchill, Canadian and U.S. Pacific ports, 15⅝¢ bu. The above adjustment prices apply to wheat milled in Western Canada. For wheat milled in the Bayport area the rate is ½¢ bu. less, while for wheat milled in the Humberstone area and in the Toronto area the rate is 1¢ bu. less. Wheat milled in the Montreal area is 3¢ bu. less.

Production for April 9-16 is at the left; for April 16-23 appears here

WEEKLY FLOUR PRODUCTION, IN SACKS (CWT.)

Flour production in principal manufacturing areas by mills reporting currently to THE Northwestern MILLER with relationship of production to capacity and to the total estimated output of all mills in the U.S. expressed in percentages:

	Apr. 16-23, 1961	*Previous week	Apr. 17-24, 1960	Apr. 18-25, 1959	Apr. 19-26, 1958
Northwest	641,485	729,837	668,875	709,419	672,954
Southwest	1,368,635	1,394,392	1,331,821	1,409,276	1,155,276
Buffalo	528,755	483,124	505,855	534,768	483,776
Central and Southeast	601,554	613,935	594,930	596,596	548,521
Pacific Coast	413,441	447,401	435,524	453,030	335,210
Totals	3,553,870	3,668,689	3,537,005	3,703,089	3,195,728
Percentage of total U.S. output	80.0	80.0	75	75	75
Estimated total U.S. production	4,442,338	4,585,861			
Accumulated total this month	13,447,685	9,005,347			

*Revised.

	—Percentage of capacity operated in 5-day week—					Crop year flour production —July 1 to—	
	Apr. 16-23, 1961	Previous week	Apr. 17-24, 1960	Apr. 18-25, 1959	Apr. 19-26, 1958	April 23, 1961	April 24, 1960
Northwest	85	97	92	106	101	31,427,874	30,508,874
Southwest	105	107	103	107	88	63,063,549	62,715,038
Buffalo	105	96	103	113	102	21,783,504	21,925,081
Central and S. E.	94	96	92	105	92	26,260,557	26,349,677
Pacific Coast	86	93	93	144	106	18,654,126	19,297,784
Totals	96	99	98	111	96	161,189,610	160,796,454

NORTHWEST

Minneapolis

	5-day week capacity	Flour output	% capacity
April 16-23	198,500	182,879	92
Previous week	198,500	197,309	99
Year ago	231,000	175,791	76
Two years ago	237,000	215,054	91
Five-year average			94
Ten-year average			95

Principal interior mills in Minnesota, including Duluth, St. Paul, North Dakota, Montana and Iowa:

	5-day week capacity	Flour output	% capacity
April 16-23	547,575	458,506	82
Previous week	547,575	532,528	96
Year ago	494,500	493,084	100
Two years ago	430,500	494,365	115
Five-year average			104
Ten-year average			95

CENTRAL AND SOUTHEASTERN

Mills in Illinois, Ohio, Michigan, Wisconsin, Indiana, Kentucky, North Carolina, Tennessee, Virginia, Georgia and eastern Missouri:

	5-day week capacity	Flour output	% capacity
April 16-23	640,200	601,554	94
Previous week	640,200	613,935	96
Year ago	643,750	594,930	92
Two years ago	570,260	596,596	105
Five-year average			94
Ten-year average			87

SOUTHWEST

Kansas City

	5-day week capacity	Flour output	% capacity
April 16-23	297,750	305,102	102
Previous week	297,750	297,077	100
Year ago	221,750	234,675	106
Two years ago	287,500	258,281	90
Five-year average			106
Ten-year average			99

Representative Mills, Outside of Kansas City (Including Wichita and Salina)

	5-day week capacity	Flour output	% capacity
April 16-23	1,009,109	1,063,533	105
Previous week	1,009,109	1,097,315	109
Year ago	1,068,800	1,097,146	103
Two years ago	1,032,000	1,150,989	112
Five-year average			108
Ten-year average			99

BUFFALO

	5-day week capacity	Flour output	% capacity
April 16-23	505,500	528,755	105
Previous week	505,500	483,124	96
Year ago	493,500	505,855	103
Two years ago	475,000	534,768	113
Five-year average			108
Ten-year average			104

Millfeed Production

Mills in the Northwest, Southwest and at Buffalo, representing 75% of the combined flour milling capacities of those areas, reported production of 47,909 tons of millfeed for April 16-23 compared with an output of 47,299 in the corresponding week a year ago. Production for the previous week of April 9-16 was 49,201, compared to 48,662 in the corresponding week of 1960.

PACIFIC COAST

Principal Mills on the Pacific Coast

California, Oregon and Washington Mills

	5-day week capacity	Flour output	% capacity
April 16-23	479,200	413,441	86
Previous week	479,200	447,401	93
Year ago	466,500	435,524	93
Two years ago	315,000	453,030	144
Five-year average			96
Ten-year average			89

DURUM PRODUCTS OUTPUT

Durum products output of mills reporting to THE Northwestern MILLER, in sacks, based on five-day week:

	5-day week capacity	Wkly. production	% of capacity
April 16-23	167,250	165,317	99
Previous week	167,250	173,128	104
Year ago	156,500	163,367	104

	Crop year production
July 1, 1960-April 23, 1961	7,977,457
July 1, 1959-April 24, 1960	7,849,953

K-STATE DEDICATION

Millers are urged to invite high school students to attend the dedication ceremonies for the new Kansas State University pilot flour mill May 18. A program has been arranged for the students, reports Dr. John A. Shellenberger, head of K-State's Department of Flour and Feed Milling Industries. The formal program will include talks on careers in flour milling. Speakers will include Ellis D. English, Millers National Federation president. (See "Contributors" page 18; "Field Day" page 58.)

O. C. Spohn, Veteran Miller, Dies in Kansas

O. C. Spohn, veteran miller, died April 23. Mr. Spohn's career as an operative miller spanned a period dating back to the early 1920's. He was 67 years of age.

O. C. Spohn

Originally from Caldwell, Kansas, Mr. Spohn joined General Mills, Inc., at Wichita in 1922. He remained with the firm until 1945, when he resigned to accept a position as superintendent of the Ismert-Hincke Milling Co. at Topeka, Kansas.

Mr. Spohn retired last year and joined Nor-Vell, Inc., Fort Scott, Kansas. He served as president of the Association of Operative Millers during the period 1959-60.

Survivors are his wife, Marjorie, three daughters and one son. «

Young Millers Convene In Washington During Federation Meeting

Lin L. Lundgaard, vice president and general sales manager of Ismert-Hincke Milling Co., Kansas City, served as chairman of the Young Millers meeting and luncheon held in conjunction with the Millers National Federation convention in Washington.

Donald M. Counihan, general counsel for the American Corn Millers Federation, Washington, backgrounded the group on the Washington scene, emphasizing the continuing need for industry effort to make certain that full value is received from tax dollars being collected for the federal government.

Mr. Counihan warned of the dangers of "loss by default" when hard working businessmen become so busy they do not take time to become informed on proposed legislation, or even offer advice and guidance to their elected representatives in Washington.

Robert L. McGuire, Quaker Oats Co., Los Angeles, was elected chairman of the Young Millers for the coming year.

As guests, the group invited Ellis D. English, Archer-Daniels-Midland Co., MNF president, and Herman Steen, the federation's retired executive secretary. «

"READY TO GO" with plans for the allied trades party to be held in Minneapolis May 22, in conjunction with the 65th annual technical conference of the Association of Operative Millers, are these committee members. They are, left to right: George W. Potts, THE Northwestern MILLER; Fritz Schiess, Buhler Corp.; B. Wayne Carmichael, Merck & Co., Inc.; Robert J. McDonald, Bemis Bro. Bag Co.; Dan Strachan, Simon-Carter Co., and Jack Houston, Wallace & Tiernan, Inc. Mr. Carmichael and Mr. McDonald are co-chairmen of the committee.

Seaboard Allied Plans Expansion at Topeka

Work is scheduled to begin shortly on installation of a new unit for Seaboard Allied Milling Corp. at Topeka, Kansas, which will provide for an additional 4,000 cwt. of flour, 24 hr. working. The mill being expanded presently has a daily capacity of 7,000 cwt.

Added capacity will be provided by installation of machinery in space available in one of the firm's mill buildings. The new facilities, to be completely pneumatic, along with other equipment for the new unit, are being designed and engineered by the Buhler Corp.

Seaboard Allied operates a second unit in Topeka which has a daily milling capacity of 4,000 cwt.

Plans are to incorporate the Buhler short process, plus a pneumatic wheat cleaning facility. Pneumatic conveying of all mill stocks and finished products is called for in the plans, along with enlargement of Seaboard's bulk flour storage and handling equipment.

Seaboard's Topeka facilities are operated by two of its divisions, Ismert-Hincke Milling Co. and Rodney Milling Co.

Installation of the new facilities will be undertaken without interruption of operations of the present mill. «

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Lake of the Woods Milling Co. Limited

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Montreal

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CABLE CODES
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Makers of CANADIAN HARD SPRING WHEAT *Flour*

Mills at
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HEAD OFFICE: MONTREAL WESTERN OFFICE: WINNIPEG

LEADING FLOUR IMPORTERS ABROAD

Many of the firms appearing in this list are available to handle the importation of other products besides flour. Some specialize additionally in cereals, some in bakers' sundries and others in feed grains and ingredients. Most of them have connections in adjacent countries and are equipped to handle both import and export business on an extensive basis. For a list of recommended firms dealing in specific commodities or in specific countries write to THE Northwestern MILLER, P.O. Box No. 67, Minneapolis 40, Minn., U.S.A.

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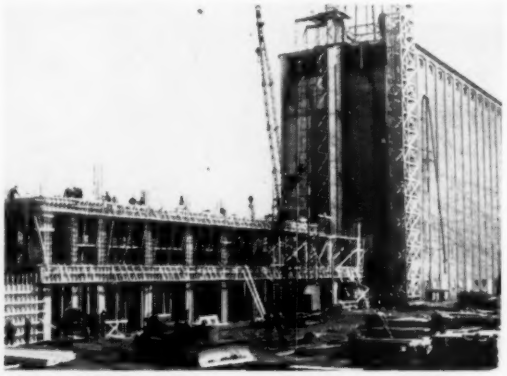
THE MILL, the largest in the British Commonwealth, with a capacity of 26,000 cwt., not all of it in use, burned on the night of Oct. 7, 1960. At right is the scene the following day.

As Phoenix from the Ashes . . .

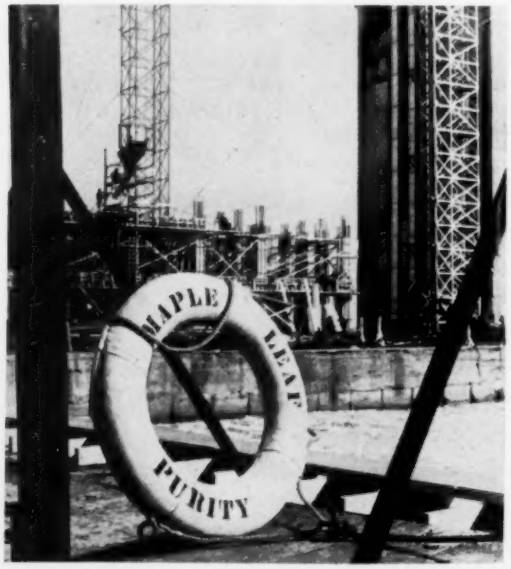
New Flour Mill Rises At Port Colborne

Executives of Maple Leaf Mills, Ltd., Toronto, Canada, lost no time in making plans for the rebuilding of their plant at Port Colborne, destroyed by fire last fall. And no sooner were the plans made than orders were issued to Henry Simon, Ltd. of England to provide the machinery. And the building is taking shape.

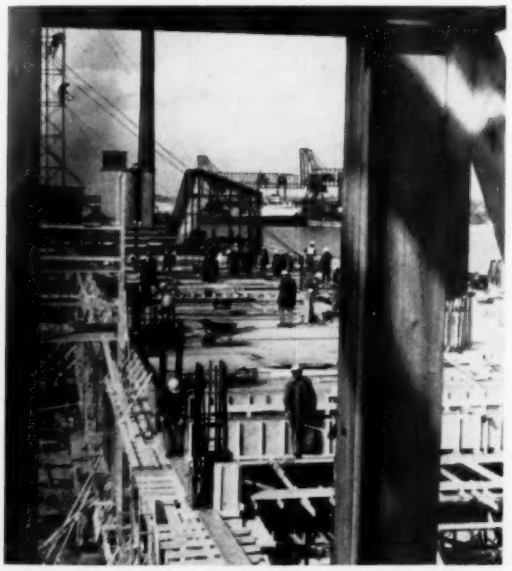
PLANNING SESSION in progress. Left to right, Ronald Fraser, site engineer for Henry Simon, Ltd.; Jack Lynde, Maple Leaf; David R. Casson, Simon of Canada, and Stuart Butler, Maple Leaf, president of the Association of Operative Millers.



THE NEW MILL will have a capacity of 7,000 cwt., basis 24 hours of working. The old mill, says Clifford E. Soward, president, was uneconomic in relation to size and location. Maple Leaf will emerge stronger than ever, he declares.



MACHINERY from Simon headquarters at Cheadle Heath is already on the water and will arrive at the Maple Leaf dock on Lake Erie shortly.



STRATEGICALLY LOCATED, the new mill will serve both the export and the domestic trade. It lies on the St. Lawrence Seaway.

Board of Trade President Scores Farm Program

The Kennedy-Freeman farm plan has been scored in an address by Robert C. Liebenow, president of the Chicago Board of Trade, as "just one more dangerous incursion into the realm of complete governmental domination of all agriculture."

"It is actully more dangerous than any—and all—of the previously attempted programs," warned Mr. Liebenow, addressing a meeting of the Chicago Financial Writers Assn.

Mr. Liebenow cited "successive failures" of the Federal Farm Board and the Agricultural Adjustment Act, referring to high support loan levels as "stimulants that increase the problem instead of providing a complete cure or even assuaging it slightly."

He contended that the secretary of agriculture and the administration have taken "the wrong fork in the road" by already raising support prices for corn, grain sorghums, soybeans, cotton and other commodities.

"Of particular interest to millers and other processors of farm products, similar action is just around the corner for wheat and rye," predicted Mr. Liebenow. "This, in view of what has always been the concomitant of relatively high support prices, is like a medical doctor prescribing a stepped-up input of calories as a cure for being overweight," he said.

"In Russia and China, where the government has absolute life-and-death power over everything, collectivization of agriculture has been a flop, and it will not work here.

"Late as it is, there is still time for Secretary of Agriculture Freeman to turn around. He can amend his plans by dropping, instead of increasing, controls. He can help the farmer with more practical and feasible means, which I strongly urge him to do," concluded Mr. Liebenow. «

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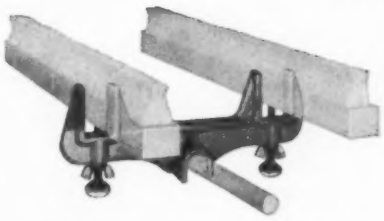

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LOOKING AHEAD IN CALIFORNIA:

Pillsbury's Los Angeles Plant Nears Readiness for July Start

PILLSBURY'S NEW FLOUR MILL in East Los Angeles will begin operations about July 1. With the installation of the machinery almost completed, the work of spouting up is now proceeding. And when the mill is running next summer, President Paul S. Gerot feels that the Pillsbury Co. will have "the best and most modern plant in the country today."

Directors of the company will inspect the plant May 2 when they hold a board meeting in Los Angeles —the first ever on the West Coast for the 91 - year - old company. They will see a 4,000 cwt. mill, basis 24 hours of operation, as compact as any in operation today. The new unit, plus the existing 3,000 cwt. of capacity at Sacramento, will raise Pillsbury's total output potential in California to at least 7,000 cwt. a day. Mr. Gerot explains that the rapidly increasing population and the firm's expanding business in California led to the decision to increase capacity in the state.

Paul S. Gerot

The contract for engineering and supply of equipment was handled by Henry Simon, Ltd., the British milling engineering firm and its affiliate in the U.S., the Simon-Carter Co. of Minneapolis. The new equipment includes Simon roller mills, purifiers and pneumatic handling equipment, Day Co. dust collection filters and Great Western sifters.

Ben J. Greer, executive vice president of Pillsbury's industrial area, says a team of the firm's engineers spent several weeks at Simon headquarters in England in order to establish close cooperation in the planning and engineering of the new mill.

A lengthy examination was carried out on every piece of equipment in the new mill "down to the nuts and bolts," Mr. Greer declares. Given special attention were the sanitation aspects of the plant. Mr. Greer reports: "When a part could be improved in its ability to be clean and stay clean, it was either modified or entirely redesigned. As a result, we feel we have the latest and best in sanitary operation."

Cooperation Lauded

A Simon official, commenting on this cooperation between the two firms, had this to say: "Pillsbury's vast milling experience in the North American market was combined with Simon's experience as milling engineers throughout the world, and throughout the venture there was, and still is, the closest possible liaison and interchange of engineering and technical know-how between the staffs of the Pillsbury Co., Simon-Carter in Minneapolis and its Simon affiliate in England."

This cooperation, observers say, will result in a mill of outstanding compactness and operating efficiency. Use of the latest high capacity machines will contribute to this end.

Considerable ingenuity appears to

The Pillsbury Co. is building a new flour mill in the rapidly growing consumer market of California. In 1959, the estimated population of the state was 14,639,000 and flour consumption, based on 110 lb. per person—a conservative estimate — was 16,102,900 cwt. Mills within the state operated at 115.5% of capacity and flour production totaled 6,279,000 cwt. This left a deficit of nearly 10 million cwt. to be shipped into California from outside the state. By next summer, Pillsbury's California capacity will be in excess of 7,000 cwt. per day.

have been shown by the Pillsbury technologists and the Simon engineers in getting a 4,000 cwt. mill, complete with storage and packaging facilities, into a building initially designed and used as a feed mill. But the building has not inhibited the planning—a good flour mill was required and the joint forces decided to produce just that.

The seven-storied structure, built in 1947, contains the entire milling operation from cleaned wheat to finished flour, including some of the pre-milling conditioning operations in the space of 2,232 sq. ft., or about 4.5 sq. ft. per cwt. This compares with an average of about 6 sq. ft. per cwt. in other Pillsbury mills. The cleaning operation also incorporates pneumatic handling with Simon-Carter millerators and disc machines.

B. J. Greer

Bulk flour storage of over 30,000 cwt. capacity and a grain elevator with a capacity in excess of 1 million bushels will be included in the East Los Angeles complex also.

The end result? Improved flour of high quality, color and uniformity, says Mr. Greer. He reveals that most of the new mill's output next year will be devoted to bakery hard wheat flour. Soft wheat flour will continue to be supplied by the company's mill at Ogden, Utah.

• • •

Richard C. Bradford Named to Los Angeles

Richard C. Bradford has been named manager of Pillsbury's new mill at Los Angeles. A former president of the Association of Operative Millers, Mr. Bradford joined Pillsbury in 1933 and was staff milling superintendent in Minneapolis before being transferred to Sacramento, Cal., as manager of the mill there in 1959.

R. C. Bradford

H. J. Iwinski

Mr. Bradford is succeeded as manager at Sacramento by Henry J. Iwinski, formerly assistant milling superintendent at Pillsbury's Buffalo mill. Mr. Iwinski started with Pillsbury in 1947 as a car loader while a student at the University of Buffalo. On completing his studies, he joined the company as a draftsman. He was named assistant milling superintendent in 1960.

• • •

Pillsbury's Place In the National Picture

Pillsbury is the second largest flour milling company in the U.S. with mills at Ogden, Utah; Astoria, Ore.; Atchison, Kansas; Buffalo, N.Y.; Enid, Okla.; Minneapolis, Minn., and Springfield, Ill. It has two mills in Canada, one at Calgary, Alta., another at Midland, Ont., through its affiliate, Pillsbury Canada, Ltd. The firm's interests extend to Latin America and to Ghana, Africa, and to many other countries as a leading exporter of flour.

Technologically, Pillsbury men have always been among the leaders in the U.S. and many interesting and useful developments have come out of the firm's research and development units. Pillsbury, too, does its share of trade association work, particularly in the Millers National Federation and in the Association of Operative Millers. Members of the technological staffs have given unstintingly of their own time to help bring about more efficient milling methods under the aegis of AOM.

Even before the decision to build a new flour mill in California, Pillsbury had amply demonstrated its faith in the future of the state. The company's investment has more than tripled in the area during the past two decades.

It contributes equally as much to the economies of other sections of the country. «

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Hubbard Extends Modernization Program to Include Pneumatics

AN EXTENSIVE remodeling program is in the works at the Mankato, Minn., plant of the Hubbard Milling Co. Part of a series of projects started a few years ago to improve and modernize the plant in stages, the major part of the operation right now involves the installation of a pneumatic system for conveying mill stocks.

The contract for the engineering and installation work has been awarded to the Buhler Corp. of Minneapolis. In addition, the company's plans call for the replacement of three Nordyke sifters with new Allis-Chalmers free-swinging sifters and four Nordyke purifiers with double-sieve Allis-Chalmers units. Charles B. MacLeod, chairman of the board, comments: "The Buhler pneumatic system and the new equipment will greatly improve plant efficiency and economy and will be a big factor in sanitation and quality control."

C. B. MacLeod

Other plant improvements of a general nature will be made at the same time, Mr. MacLeod reports. All windows in the mill—erected in 1919—are being replaced with aluminum frames, panels and glass, and some window openings are being closed. Throughout the mill, the walls are being replastered where necessary and a new coat of paint will be applied throughout the plant to complete the job. The whole adds up to greater sanitation and temperature control in the building itself, officials say.

Recently, the company installed 16 flour storage tanks of 100,000 lb. capacity each, together with equipment for loading bulk cars.

BUILDING the first Hubbard mill at Mankato, Minn., in 1879. The building, completely renovated, now houses a modern feed plant.

THE HUBBARD milling facility in 1924. A new mill was built in 1919 to increase productive capacity.

Mr. MacLeod explaining the reasons for the company's decision to move further ahead into the modernization field, said: "Hubbard is enjoying excellent flour business and if we are to continue to serve our customers and meet competition we must continually strive for greater efficiency, greater economy, greater sanitation and even more rigid quality control."

The firm was started in 1879 by R. D. Hubbard, William Pearson and G. M. Palmer. It was originally a stone mill with 300 bbl. capacity but after running a few months it was shut down and converted to the roller system of milling which was just then being adopted in neighboring Minneapolis. Increased business brought about the expansion of the facilities in 1919 under Mr. Palmer who had become president on buying the mill from the Hubbard estate in 1906.

Hubbard entered the feed business in 1928 and has extended considerably into that field during the past few years. Ogden P. Confer is currently president of the company. Recently elected vice president is the former plant superintendent, Walter J. Arnold. He is responsible for production in the flour mill at Mankato and for the company's feed manufacturing facilities. In addition, he is in charge of engineering and maintenance at the firm's branches in Cedar Rapids, Iowa; Springfield, Ill., and Marion, Ind. «

W. J. Arnold

Hubbard Milling Co. plant at Mankato seen from the air. The flour mill has a rated capacity of 3,400 cwt. basis 24 hours of operation.

MRS. JAMES F. BELL DIES

The wife of the founder of General Mills, Inc., Mrs. James Ford Bell, died in Honolulu April 26 of a heart attack. Mrs. Bell was 82, and had been visiting her daughter, Mrs. Herbert O. Perry. Her husband, in Minneapolis at the time of her death, is past president and retired chairman of the board of General Mills. Survivors, in addition to her husband and daughter, are three sons, Charles H., president of General Mills; J. Ford, chairman, Red Owl Stores, Inc., and Samuel H., Chandler, Ariz., and 11 grandchildren. «

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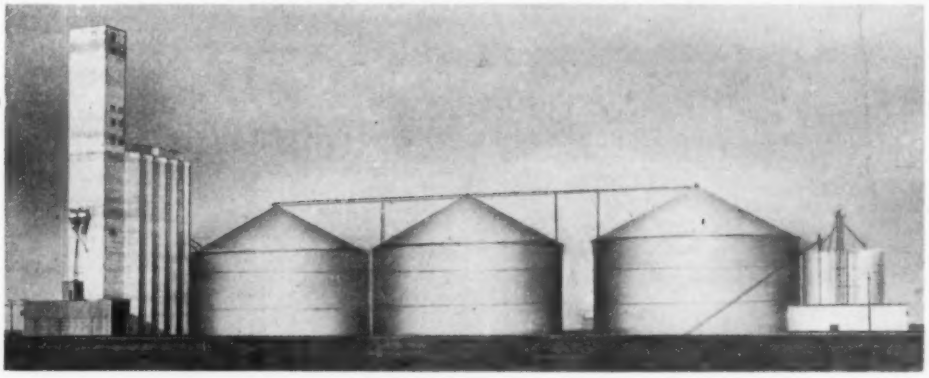
THE CAMERA CAPTURES highlights of the American Association of Cereal Chemists' annual meeting in Dallas. No. 1: Dr. Majel M. MacMasters, Kansas State University, receives the Osborne Medal award from Dr. John A. Johnson, retired president, also of K-State. No. 2: New officers and directors, left to right: S. F. Brockington, Quaker Oats Co., director; Dr. Byron S. Miller, K-State, secretary; Dr. James W. Evans, American Maize Products Co., new president; Marjorie A. Howe, Russell Miller-King Midas Mills, treasurer; Dr. MacMasters, president-elect. No. 3: R. W. Mitchell, left, Dr. R. C. Sherwood, center, are congratulated by Dr. Johnson on receiving honorary memberships. Mr. Mitchell is a lecturer at the American Institute of Baking. Dr. Sherwood is vice president and technical director of Sterwin Chemicals, Inc. No. 4: Dr. Johnson passes the gavel to AACC's new "chief", Dr. Evans.



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GRIST of GRINS

A happily married couple—a jealous wife and a husband who believed in reincarnation. Finally the husband died. Keeping a pact they had had for years, the wife communicated with him in the spirit world twelve months after his untimely demise.

"Are you happy there?" she asked.

"Happier than I ever was before," he replied. "The pastures here are greener, and it's indeed beautiful. And the weaker sex are the most gorgeous creatures you ever saw. Wistful eyes that speak of love; sleek bodies and beautiful rounded forms."

"Oh, dear!" she expostulated. "With so much temptation about you, I'm afraid you'll do something you'll be ashamed of. I do hope I can soon join you in Heaven."

"Heaven?" boomed back the reply. "Who said I was in Heaven? I'm a bull in Montana."

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Since 1866
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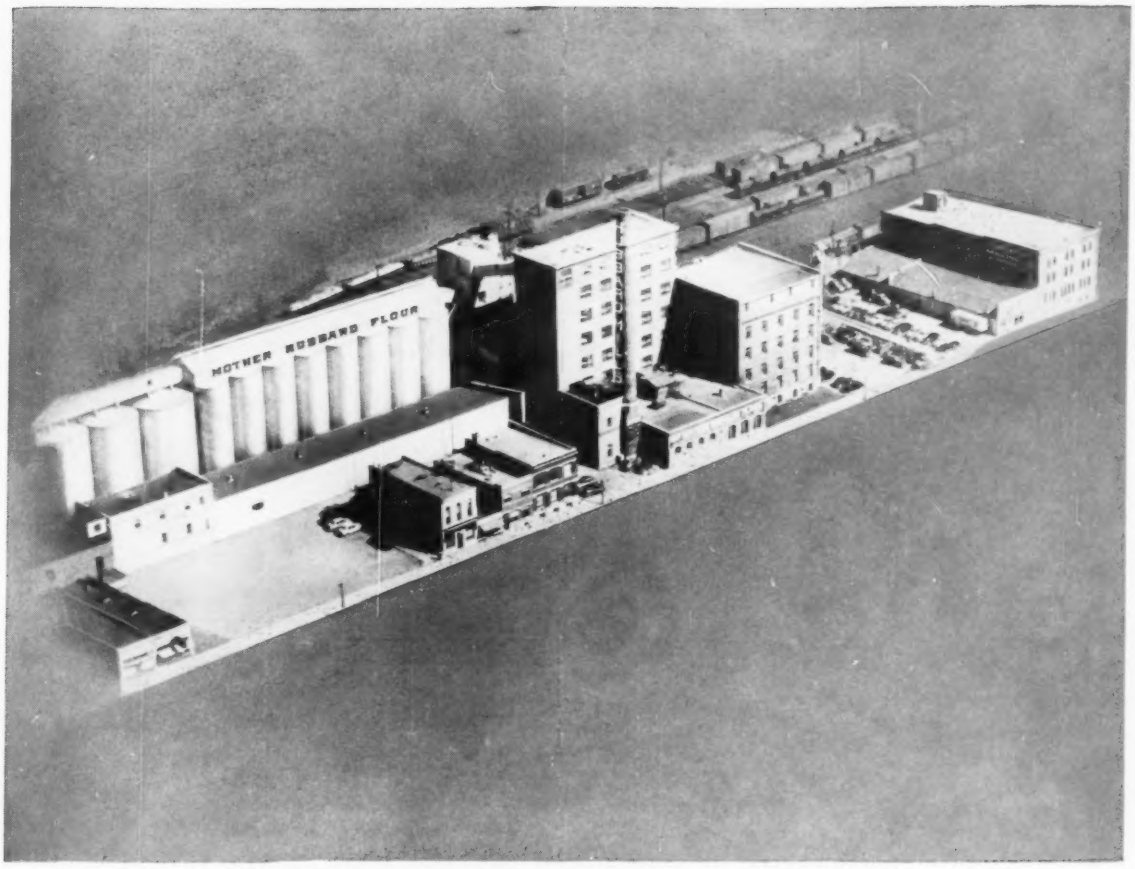

Hubbard Milling Co., Mankato, Minnesota 3000 sacks capacity—mill elevator storage, 500,000 bu.

Mill employee setting single control of Dyox machine for maturing flour.

HUBBARD MILLING CO. KEEPS CUPBOARDS FILLED WITH THE HELP OF

W&T Flour Treatment

Hubbard Milling Co. uses dependable Wallace and Tiernan processes and equipments to send a steady flow of fine flour products to its customers. This mill knows the benefits of doing business with a firm of single-line responsibility — with manufacture, sales, and service under one roof.

At Hubbard Milling the W&T Dyox® Process is used to generate and apply chlorine dioxide gas accurately and uniformly... matures the flour for best performance in bread baking.

Novadelox®, chosen for its bleaching efficiency, is fed through mill-proved NA Feeders for peak color removal and best color dress. Similar feeders apply "N-RICHMENT-A"® for the addition of vitamins and minerals.

Hubbard Milling Co. is only one of the many milling companies using W&T Flour treatment. If your mill is not one of these, investigate the advantages of Wallace & Tiernan's complete flour service.

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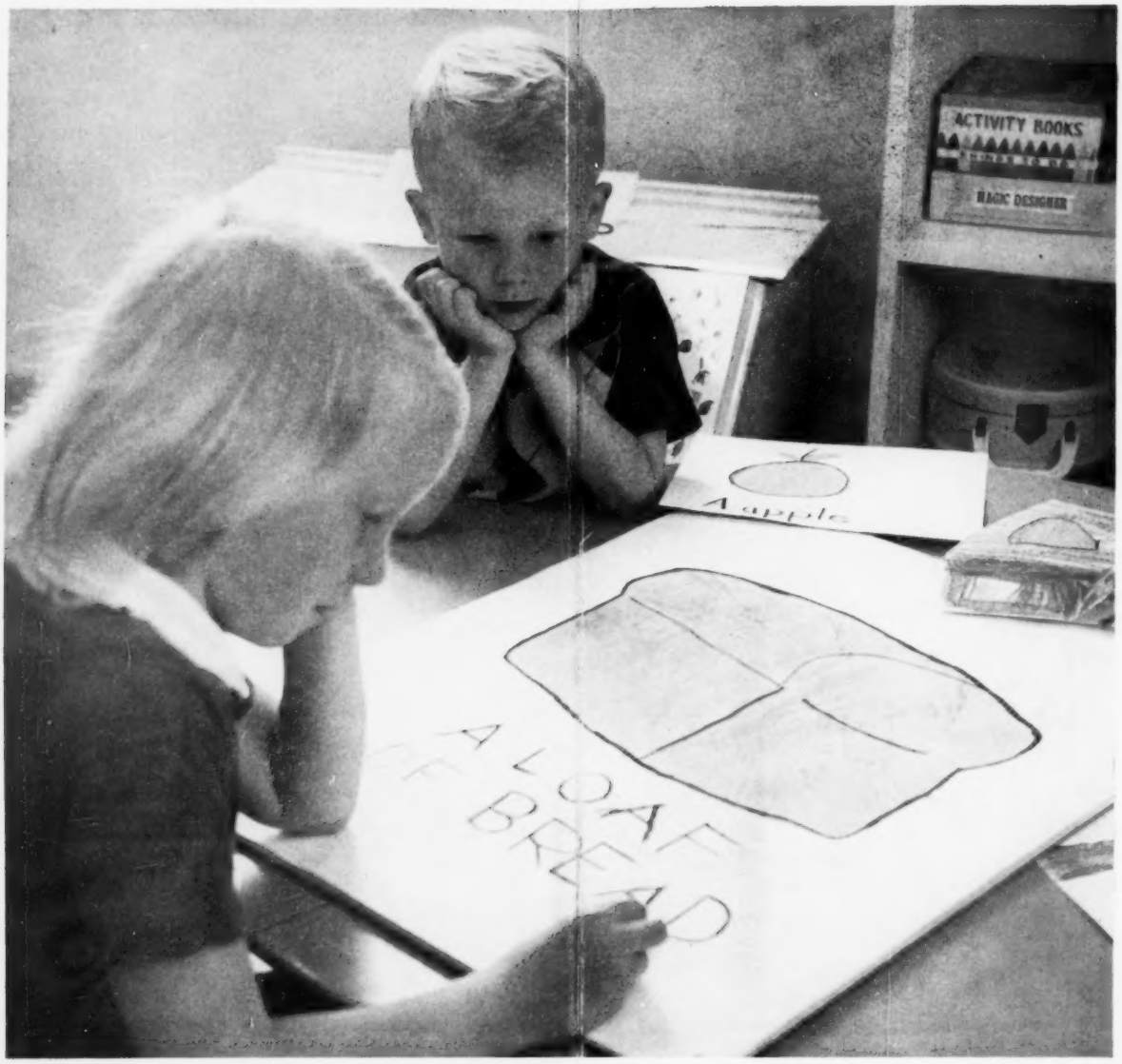

A is still for apple, and B is still for bread

Since the alphabet began, we've learned it through the words that mean the most.

Simple words, with great meaning . . . like Bread. B stands for Bread, and Bread stands for food, for home, for security. Bread has stood for these things since man first stopped roaming to cultivate his fields and raise his grain and start a civilization.

The world has changed a lot, but the basic alphabet by which we live has changed very little; the basics are still the same . . . and B still stands for Bread.

General Mills proudly takes its part in supplying the baking industry with the finest flour the world has yet milled.

Good eating will always begin with Bread

General Mills